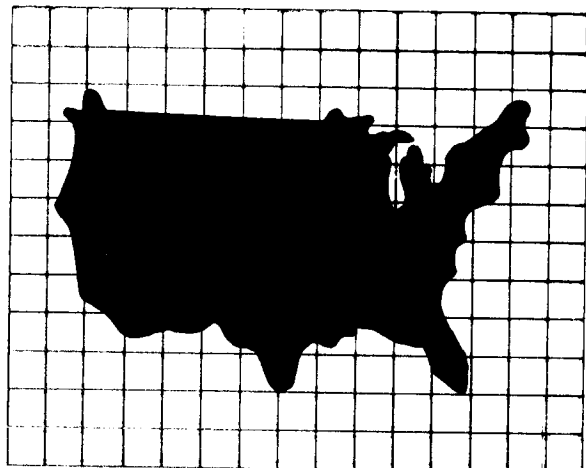


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VOLUME III Advanced Networks and Economics

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ADVANCED NETWORKS AND ECONOMICS

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U.S. LONG DISTANCE FIBER OPTIC NETWORKS:
TECHNOLOGY, EVOLUTION, AND ADVANCED CONCEPTS

Summary

Over the past two decades, fiber optics has emerged as a highly practical and cost-efficient communications technology. Its competitiveness vis-a-vis other transmission media, especially satellite, has become a critical question.

This report studies the likely evolution and application of fiber optic networks in the United States to the end of the century. The outlook for the technology of fiber systems is assessed and forecast, scenarios of the evolution of fiber optic network development are constructed, and costs to provide service are determined and examined parametrically as a function of network size and traffic carried.

Volume I consists of the Executive Summary.

Volume II focuses on fiber optic technology and long distance fiber optic networks. Among the volume's conclusions are: fiber optic technology is still a young technology, with improvements yet to be realized in performance and cost; fiber optics is the preferred medium for many long distance applications; many companies have been investing heavily in long distance fiber optic networks, raising fears of a capacity glut.

Volume III develops a traffic and financial model of a nationwide long distance transmission network. A LATA-to-LATA traffic matrix is established and then applied to four long distance backbone network configurations with 11, 15, 17, and 23 nodes. The model is then extended to include transmission from the inter-exchange backbone network to the points-of-presence in individual LATAs. Cost calculations are done for first and annual costs for all four network configurations and for projected traffic from 1985 to 2000. Cost drivers are identified for various levels of the total network.

Among the study's most important conclusions are: revenue requirements per circuit for LATA-to-LATA fiber optic links are less than one cent per call minute; multiplex equipment, which is likely to be required in any competing system, is the largest contributor to circuit costs; the potential capacity of fiber optic cable is very large and as yet undefined; and fiber optic transmission combined with other network optimization schemes can lead to even lower costs than those identified in this study.

U.S. LONG DISTANCE FIBER OPTIC NETWORKS:
TECHNOLOGY, EVOLUTION, AND ADVANCED CONCEPTS

INTRODUCTION

Background

Over the past two decades, fiber optics has emerged as a highly practical and cost-efficient communications technology. With potentially unlimited bandwidth, low attenuation, small size and weight, immunity from interference, and other advantages, fiber optics has competed with, and often displaced, other communications media in a number of applications. Long distance telecommunications networks are one area in which fiber optics has proven to be especially competitive.

Proper guidance of NASA's advanced communication satellite technology program requires an understanding and assessment of competing transmission systems such as fiber optics. Only through a comprehensive assessment of these technological alternatives can the most productive direction for satellite technology development be determined.

To assist them in their evaluation, NASA Lewis Research Center contracted with IGI Consulting to study the likely evolution and application of fiber optic networks in the United States to the end of the century. According to the scope of work,

The outlook for the technology of fiber systems will be assessed and forecast, scenarios of the evolution of fiber optic network development will be constructed, and costs to provide service will be determined and examined parametrically as a function of network size and traffic carried. This information will provide a quantitative data base for the Phase II study which will directly study the impact of fiber networks on communications satellite systems.

This report is the result of that 14-month study effort.

Organization of The Study

This study is presented in three volumes.

Volume I is the Executive Summary, which provides an overview of the methodology, results, and conclusions of the entire effort.

Volume II focuses on "Fiber Optic Technology and Long Distance Networks."

- Section 1 provides an overview of fiber optic technology. Its principal subsections present a description of fiber optic systems, the advantages of fiber optics for long haul transmission, the historical development of fiber optics, trends in fiber optic technology, and factors affecting the development of the technology.
- Section 2 discusses performance characteristics, research and development foci, costs, and technology assessments for each of the major components required for long distance fiber optics networks: fibers, cables, light sources, detectors, multiplexers, and switches.
- Section 3 introduces fiber optic long haul systems and provides the background necessary to understand the phenomenal growth of these networks over the past several years. Among the issues discussed are the impact of divestiture and deregulation, the use of fiber in long distance networks, and market trends such as consolidation, overcapacity, and rights-of-way.
- Section 4 presents descriptions, route maps, and technology and market assessments for 22 national and regional fiber optic long haul networks. The national systems presented are ALC Communications, AT&T Communications, Fibertrak, MCI, National Telecommunications Network, and U.S. Sprint. The regional networks are Bandwidth Technologies, Consolidated Network, Digi-Net, Electra Communications, Indiana Switch, ICC, LDX Net, Lightnet, LiTel, Microtel, Mutual Signal, NorLight, Rochester Communications, SouthernNet, Southland Fibernet, and Wiltel.

Volume III develops a financial model of a nationwide long distance transmission network between local access and transport areas (LATA). This network uses optical fibers as the transmission medium and is capable of carrying the total domestic inter-exchange (IX) traffic.

- Section 5 establishes the traffic model upon which the financial model is based. Based on both switched telephone traffic and private line services, the model creates a LATA-to-LATA traffic matrix for the total switched IX telephone traffic. The data from this matrix are then applied to four long distance backbone network configurations consisting of 11, 15, 17, and 23 nodes. The numbers of voice circuits needed on each

link connecting the access nodes of the backbone networks are then calculated. The model is also extended to analyze the regional access networks associated with each access node in each of the four IX backbone networks, i.e., the model includes transmission from the inter-exchange backbone network to the carrier's point-of-presence (POP) in the individual LATA.

- Section 6 provides the financial model for the four networks established in Section 5. This model establishes the costs of material and equipment, engineering, installation and testing so that a system cost analysis can be conducted for any network configuration and for projected traffic from 1985 to 2000. Cost calculations are carried out for first costs and annual costs. The model is divided into two major segments -- the inter-nodal and the LATA access -- for each prototype network. Each model segment is evaluated and analyzed separately, and the results are combined, making it possible to identify the various cost drivers and to note their effect on various levels of the total network.
- Section 7 presents summary statements about the evolution and impact of fiber optic networks. Comparisons are made between fiber optics, microwave, and satellites. Conclusions are also drawn concerning the current and potential capabilities and costs of fiber optic long distance networks.

SECTION 5.0
ADVANCED FIBER OPTIC NETWORK CONCEPT DEFINITION

In order to develop a financial model of a nationwide long distance inter-exchange (IX) network, it is first necessary to establish an operational model of the network. The most important ingredient of the model is, of course, the traffic between the access nodes in the network.

5.1 METHODOLOGY FOR CONSTRUCTION OF TRAFFIC MODEL

5.1.1 Overview of Methodology

The construction of the traffic model requires the following tasks and subtasks, each of which is fully explained later in this section.

- (1) Establish data base for US population
 - a. Use latest (1983) US Census for MSA and non-MSA population
 - b. Derive LATA population from Census data (1a) and LATA Directory
- (2) Establish data bank for telephone access lines •
 - a. Use telephone industry statistics for per capita access lines in each state
 - b. Derive number of access lines in each LATA from (2a) and (1b)
- (3) Establish data bank for originating switched traffic
 - a. Use average busy hour (BH) originating traffic per access line from exchange carrier records
 - b. Derive from (3a) and (2b) the total originating BH-traffic for each LATA
- (4) Establish data bank for traffic flow from LATA to LATA
 - a. Use total originating BH-traffic for each LATA from (3b)
 - b. Determine terminating BH-traffic from originating traffic and ratio of destination LATA to originating LATA population
 - c. Derive from (4a) and (4b) the IX-traffic from each LATA addressed to all other LATAs for a LATA-to-LATA switched telephone traffic matrix

- (5) Establish demand for special services dedicated lines
 - a. Use FCC statistics for private lines
 - b. Use FCC and Data Processing Industry statistics for data lines
 - c. Use FCC and Broadcast Industry statistics for video lines
 - d. Derive total demand for dedicated lines from (5a), (5b) and (5c) to add to number of lines needed for switched lines from (4c)
- (6) Establish cost factors for IX network implementation from quotes and published data
- (7) Define representative IX backbone network configurations to be analyzed
 - a. Define node locations and derive node-to-node traffic matrix from (4c) for each network configuration
 - b. Determine traffic per link between all nodes and number of voice circuits needed for each network configuration
 - c. Determine regional access links and traffic from each LATA served by an access node in each of the IX backbone networks from (4a) and (7a)
- (8) Establish FC and AC for all selected networks
 - a. Use number of voice circuits for each of the network configurations from (7b)
 - b. Determine FC and AC for each link in backbone network from (6) and (8a)
- (9) Establish configuration of regional access network to nodes in IX backbone network
 - a. Use originating BH-traffic and population for each access link from (4a) and (4b)
 - b. Determine length of access links from V-H coordinates and the number of voice circuits needed from (9a)
 - c. Determine FC and AC for each access link in regional access network

5.1.2 Detailed Methodology

In the post-divestiture environment, all of the long distance traffic is defined as inter-exchange (IX), meaning inter-LATA traffic. This traffic is provided by unregulated and competing inter-exchange carriers, the so-called IX Carriers.

The concept of a LATA, or Local Access and Transport Area, was defined during the divestiture proceedings as the franchised local service area(s) of the divested Bell and independent local telephone companies, generally referred to as the exchange carriers. Consequently, the basic traffic data needed for the long distance network operational model has to be defined as to and from LATA-to-LATA traffic for the busy hour of the day, i.e. for that time of day when most circuits are used.

Historically, the bulk of telecommunications traffic and revenue is generated by switched voice communications, which in 1983 amounted to about 93 percent of total revenues by all telephone carriers reporting to the FCC. The remaining 7 percent of revenues were in the private line category, representing dedicated lines not used for the public switched network.

Traffic for the switched voice communication service is collected by the local, or exchange, carriers through the subscriber access lines, which connect user premises with local exchange central (switching) offices. The local carriers deliver this traffic to the inter-exchange access points established by the IX-carrier(s) operating in the particular area and are defined in the data base by their vertical (V) and horizontal (H) coordinates. From this discussion, it is clear that the traffic delivered to the IX-carriers is determined by the number of per capita user access lines and the traffic generated by their users. User locations and the traffic they offer to the networks are both dictated almost entirely by demographics. Therefore, the methodology for calculating the traffic originating in each LATA is based on LATA population, the number of user access lines in each LATA, and the average busy hour (BH) traffic, usually measured in hundred call-seconds (commonly abbreviated as CCS) originating from each user access line of local exchange carriers. This traffic is generally used for traffic engineering purposes. From long-standing local exchange records it was extrapolated to amount to approximately 5 CCS during the BH by 1990. However, for trunking on heavy traffic routes, such as encountered in IX trunk routes, it is more practical to use the larger traffic unit of Erlang. It is based on the definition of traffic as the product of calling rate times average duration of calls, also known as holding time (HT). By this definition, for example, 6 calls per hour at 10 minutes average HT equal one (1) Erlang, and the conversion from CCS to Erlang is simply 36 CCS equals 1 Erlang.

This methodology, therefore, first requires the determination of (1) the LATA population from the Metropolitan Statistical Area (MSA) and non-MSA population as reported by the 1983 census data, and (2) the geographical definition of each LATA as published, for example, in the LATA Directory by the Center for Communication Management, Inc. (CCMI). Major population centers are defined by the U.S. Census Bureau in terms

of Metropolitan Statistical Areas (MSA) and Primary Metropolitan Statistical Areas (PMSA), the latter being aggregations of MSAs which interact closely with each other.

Starting with the MSA population, the whole or partial LATA population of each MSA is calculated. The inter-exchange (IX) access points or "points of presence" (POP) are then determined from the pertinent tariffs. The result of these steps, shown in Exhibit 5.1, represents the demographic data base from which the traffic model will be derived. In this process the Rate Center listing for each LATA in the CCMI directory was used together with the map of each state in the continental US to determine which counties are assigned to each LATA. Exceptions to this procedure are the six New England states in which portions of counties are assigned to specific LATAs, and LATA 973 in California which consists of several desert communities located in both Riverside and San Bernardino counties. Although actual LATA lines do not always follow county lines, the assignment of population estimate errors appear to be small and tend to compensate in the average.

1980 population data for each county not included in the MSA are obtained from Table 17 of the 1980 Census Report. 1983 population data are available for each county included in an MSA from Appendix II of the 1985 Statistical Abstract of the United States, with the exception of the six New England states. Population data for each state are available from Table 21 of this publication. For each state, population estimates for 1983 are made for each non-MSA county and the New England counties from the fraction of the 1983 non-MSA state population to the 1980 county population. The value of that fraction is then used as a multiplier for the 1980 population of each non-MSA county to arrive at a 1983 population estimate for the county. This estimate is believed to be reasonably accurate, since the population of the most populous counties and the state as a whole is available for 1983. The state population is then related to the 188 identified LATAs located in the states, producing an intermediate result for LATA population covering a whole state, part of a state, or several states, as may be seen in Exhibit 5.2.

The next step involves the determination of the number of user access lines in each LATA. This is accomplished by using (1) the 1984 US Telephone Association (USTA) Statistics on the number of user access lines in each state, and (2) the 1983 state population from the US Census Bureau Abstracts. These data together yield the number of access lines per state population. The ratio is then multiplied by the previously calculated LATA population and represents the number of access lines in each LATA.

1983 local area traffic statistics indicate that about 40 percent of all traffic originating in a local exchange is addressed to destinations outside its own exchange area, and that about 10 percent of all traffic is addressed to another LATA. Other statistics show that 80 percent of all toll calls are inter-LATA traffic. Using 1983 FCC statistics on toll calls, this would also indicate that 10 percent of all originating local traffic results in inter-LATA traffic. The average annual growth of the inter-LATA traffic is now about 11 percent, including population growth. Since the geographical distribution of population does not change much within a 10 year span it is reasonable to assume a uniform growth of traffic nationwide. Compared with 1983, the inter-exchange (IX) traffic can be projected to have grown by a factor of 1.2 in 1985, by a factor of 2.0 by 1990, by a factor of 3.4 by 1995, and by a factor of 5.7 by 2000. Exhibit 5.2 summarizes the results from the above described 1983 LATA population and, in the last two columns, the 1990 traffic projection. Exhibit 5.3 represents the same total originating traffic information, with the data aggregated for each LATA.

The basic population data and corresponding national long distance telephone traffic data are therefore summarized in three tables that represent the primary data base for the modeling process:

- The 1983 US Census data by MSA ranking with the related LATA numbers, NPA (area code), and inter-exchange (IX) access point definitions in terms of common language location indicator (CCLI) with its coordinates (Exhibit 5.1);
- The 1983 state and LATA population data derived from the preceeding table sorted by LATA number in geographical order, and the traffic related data derived according to the previously described methodology (Exhibit 5.2); and
- A summary of total 1990 projected LATA originating traffic (in CCS) and the inter-exchange (IX) traffic (in Erlang) together with access point information (Exhibit 5.3). Traffic for 1985, 1990, 1995 and 2000 are related to each other by the traffic growth figures discussed earlier.

From the total originating traffic in a LATA, the traffic to a particular destination LATA is calculated from the total inter-LATA (IX) traffic multiplied by the fraction of the population in the receiving LATA in proportion to the total US population, i.e. the ratio of destination LATA population to total US population. From long distance calling patterns by mileage band, it is also

known that longer toll calls are less frequent than short ones. AT&T Long Lines pre-divestiture records covering 20 years of operations are used to calculate the percentage of toll calls addressed to each mileage band. These percentages are extrapolated to present and future years and are then used (in addition to the population ratios) as distance weights in the calculation of the distribution of originating traffic to all other LATA destinations according to their distances from the originating LATA. For 1985 to 1990, they appear to average about 35 percent for calls under 200 miles, 23 percent for 200 to 500 miles, 20 percent for 500 to 1000 miles, 14 percent for 1000 miles to 2000 miles, and 8 percent for over 2000 miles. The distances are calculated from the V-H coordinates of the LATA access points listed in the data base.

Using this primary data base and applying the methodology mentioned earlier, the results of the LATA-to-LATA traffic calculations are summarized in the two tables described below:

- A table summarizing the distances in miles between any two of the 188 LATAs (Exhibit 5.4). (N.B. This exhibit is printed in three parts to include all 188 x 188 [or 35,344] data points.)
- A table summarizing the projected 1990 LATA-to-LATA traffic matrix calculations containing the "from" (horizontal-to-vertical) and "to" (vertical-from-horizontal) traffic data in Erlang (Exhibit 5.5, also printed in three parts).

Each part of Exhibits 5.4 and 5.5 has 12 pages for a total of 36 pages each. Exhibit 5.4, containing the distance matrix, was used to calculate the traffic matrix and represents only an intermediate step.

Exhibit 5.5 provides the necessary and sufficient data base for applying the traffic model to cost calculations of any network configuration consisting of any number of selected nodes. This exhibit also includes the access point identifications and location coordinates allowing all network configuration calculations to be performed from that data base.

It must be noted that the traffic matrix represents the demand placed on the long-distance switched public telephone service (MTS and WATS), which accounted for roughly 87.6 percent of all toll service revenues of telephone carriers reporting to the FCC in 1983. Not included are the private line (PL) services, covering various kinds of special services: dedicated voice (8 percent), data (4 percent), video (.4 percent), and others. This PL share of the switched toll (MTS and WATS) revenue has to be increased by a factor of 1.1 reflecting a 10 percent share of the PL market by all other carriers (OCCs), for

a total of 13.5 percent of the switched service in 1983. Traffic shares are assumed to follow very closely the revenue shares. Historically, the PL share has stayed fairly constant. In the early 1980s, however, there was a slight increase, so the PL share may be expected to be 14 percent in 1985 and 1990, and 15 percent in 1995 and 2000.

5.2 APPLICATION OF TRAFFIC MODEL TO NETWORKS

Before the traffic model can be applied to a particular network, it is necessary to establish some ground rules regarding the selection of geographical locations for access nodes and their connectivity.

First, the number and location of the access nodes must be established, and this is best done with the help of the table in Exhibit 5.6, which shows the LATAs ranked by traffic. Network design is customarily based on placing nodes nearest the heaviest traffic centers, with some considerations for the primary future growth regions and reasonable routing possibilities.

Second, after selecting the nodes of an IX backbone network it is then necessary to decide on their connectivity. Demographic considerations will have the highest priority since access lines, and consequently traffic, follow very strongly population patterns. Thus, there have to be north/south routes on both coasts. For route diversity and redundancy, at least two east/west routes must be established, with cross-connecting routes between them, likewise dictated by demographics.

As a general rule, each node should be connected to at least two other nodes for possible re-routing in emergencies. In addition, network connectivity and the routing of voice circuits should use the principle of a totally meshed network from LATA to LATA using all digital transmissions without any switching centers in the IX backbone network. Only in this way will the calculated cost represent transmission costs that are directly comparable to other alternative transmission media. The use of only digital circuits lend themselves easily to program controlled re-routing in IX network nodes by use of already available digital access and cross-connection systems (DACS) which provide the network with greater flexibility without the use of more expensive conventional central office switching. Voice channel switching will then be necessary only in each LATA point of presence (POP).

With these general considerations in mind, four different network configurations were approved by NASA representatives. These are an 11-node network, which may be considered to be a minimum configuration with the smallest reasonable number of nodes, a 15-node network, a 23-node network, and a 17-node network configuration. Each of these configurations complies

with the above stated ground rules.

5.2.1 11-Node Network

Exhibit 5.7 shows the list of selected nodes, with access point identification, LATA number, and coordinates. From these selected nodes, a connectivity was chosen, as shown in the map of Exhibit 5.8. A table of the 12 links, with a description and distance for each one, is presented in Exhibit 5.9.

With this complete definition of the long distance network configuration, it is now necessary to define geographical areas, identified by LATA number(s), which will be served by each node. In other words, it is necessary to identify which areas feed traffic to and receive traffic from each node.

To do this, the basic LATA originating traffic base described in Section 5 was divided into 11 regions, one for each node. The results are shown in Exhibit 5.10. In addition to traffic originating in each LATA, the last row for each node summarizes the total BH-traffic delivered by each access node to the IX backbone network and the total population served by each node. This information will be needed later for the determination of the regional access network associated with each node in the IX backbone network, to be presented in Section 5.3. We have now a fully defined traffic scenario for the selected 11-node network and may now calculate the node-to-node traffic matrix necessary for determining the number of voice circuits needed in each link of the network. It has to be noted that the inter-nodal backbone network will not carry the intra-regional (intra-nodal) traffic between the LATAs served by one node, since that traffic would not flow over any of the inter-nodal backbone links.

To calculate the traffic from each node to any of the other nodes, the LATA-to-LATA traffic matrix is used in conjunction with the list of LATAs served by each node (Exhibit 5.10), in a from/to summation of traffic between any two nodes defining a link in the network. For example, the link 1-2 from node 1 to node 2 requires the addition of all originating traffic from LATA numbers 120 through 224, directed to LATA destinations in LATA numbers 220 through 924. This procedure is used for all of the 121 cells in the 11 by 11 node-to-node traffic matrix. The result may be seen in the table of Exhibit 5.11. Total BH-traffic in this IX network amounts to 2,530,757 Erlang and is printed under the node-to-node traffic matrix. It represents approximately 81 percent of the total traffic generated by all LATAs. The remaining roughly 19 percent not included represents the intra-regional traffic mentioned before. All cost calculations will be based on data presented in Exhibits 5.7 through 5.11. The latter includes in the last two columns at the extreme right a summation of the total originating BH-traffic

from each node entering the IX backbone network. Similarly the lowest three rows summarize the total terminating BH-traffic in each node and also the total BH-traffic carried by the IX backbone network, expressed in Erlang, and as percent of total traffic generated, including the part not carried by the IX backbone. This additional information will be needed later for the calculation of the regional access network.

5.2.2 15-Node Network

Calculations for the 15-node network follow the same procedures as for the 11-node network. Exhibit 5.12 lists the 15 nodes, consisting of the 11 from the first network, plus 4 new ones. Miami and Boston are such heavy traffic centers that they were made separate nodes. Similarly, Chicago turned out to be so heavy a traffic center to warrant relief by splitting off Minneapolis as a separate node. Seattle was also added as a node, thus opening a northerly east/west route. The network configuration is illustrated in the map of Exhibit 5.13, and a list of established links is shown in Exhibit 5.14. Again, the LATA assignments of those to be served by each of the 15 nodes are listed in Exhibit 5.15, and the resulting node-to-node traffic matrix is presented in Exhibit 5.16. As before, the intra-nodal (regional) traffic is excluded in the total busy hour traffic figures. In this IX backbone network the total BH-traffic carried is 2,668,828 Erlang, or 85.34 percent of total (including intra-regional) traffic.

5.2.3 23-Node Network

Following the same procedure as in the two preceding network configurations, a 23-node network was selected with the node locations listed in Exhibit 5.17. Florida and Texas were given two nodes each, and Oklahoma City and Kansas City were added to the middle part of the U.S. Detroit, Cleveland, Pittsburgh and Buffalo were added in the north-eastern region, as shown in the map of Exhibit 5.18. The 27 links of the selected connectivity are listed in Exhibit 5.19. The LATAs served by each node are presented in Exhibit 5.20.

Based on this configuration, the node-to-node traffic matrix was calculated from the LATA-to-LATA traffic matrix, much the same way as for the previous two configurations. The resulting node-to-node matrix is presented in Exhibit 5.21. Because of the larger number of nodes the traffic is somewhat more evenly distributed, but at the price of more and shorter links in the network. Not surprisingly, the resulting total originating busy-hour inter-exchange traffic carried by the network is up to 2,914,262 Erlang, or over 93 percent of the total (including intra-regional) traffic.

5.2.4 17-Node Network

Using basically the same method as with the previous network configurations, a more traffic-balanced 17-node network was defined. This meant a reassignment of LATAs to a limited number of nodes with resulting total originating traffic volume closer to the average per node. Instead of using only geographical criteria the more traffic-balanced nodes should result in a more nearly optimum configuration with respect to traffic distribution.

The selected node locations are listed in Exhibit 5.22, the network configuration is shown in the map of Exhibit 5.23, and the links between the nodes are presented in Exhibit 5.24. This configuration is closest to the 15-node network analyzed before, with additional nodes in Cleveland (#17) and Houston (#16), an additional link from Dallas to St. Louis, and, of course, to the new nodes, as shown on the map. The LATAs served by each node are listed in Exhibit 5.25. With the listing of LATA assignments to network nodes, the last row for each node shows the total originating traffic for that node and at the end of all listings there is the average inter-exchange (IX) traffic per node displayed as well.

The node-to-node traffic matrix calculation is summarized in the table of Exhibit 5.26. If compared with the other network configurations it may be seen that the node-to-node traffic is also more evenly distributed. For example, in the 15-node network the highest node traffic reaches almost 80,000 Erlang and the lowest is just over 1,000; in contrast, the 17-node network has 30,000 for the maximum and a minimum of about 2,000 Erlang. Exhibit 5.26 also shows the total traffic carried by the 17-node network, amounting to 2,830,397 Erlang, or 90.51 percent of the total inter-exchange (including intra-regional) traffic.

5.3 APPLICATION OF TRAFFIC MODEL TO THE REGIONAL ACCESS NETWORKS

In Section 5.2, the traffic model has been applied to IX backbone networks with 11, 15, 17 and 23 nodes. In this section, the traffic model will be extended to analyze the regional access networks associated with each access node in each of the four IX backbone networks. In other words, the model will include transmission from the nodes of the interexchange backbone network to the points-of-presence (POP) within each LATA. There is no additional traffic involved, only the same traffic that is flowing through the backbone network. Now, however, the focus will be on the amount of originating and terminating traffic in each LATA. The length and number of needed voice circuits for regional distribution from the nodes to the individual LATAs will be determined by busy hour (BH) traffic and the distances from the LATAs to their assigned nodes, as calculated from the V-H

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coordinates. With the inclusion of the regional network circuits to the point of presence (POP) in each of the 188 LATAs, the total interexchange network for each backbone network will be accounted for. However, the intra-regional traffic staying within the region served by a node and not flowing through the backbone network is not included in the regional network either.

This approach to the regional access network will now be applied to each of the four backbone networks defined in Section 5.2.

5.3.1 11-Node Network

Starting with the list of LATAs assigned to each node (Exhibit 5.10) and the node-to-node traffic matrix (Exhibit 5.11), the originating and terminating BH-traffic between the access nodes in the IX backbone network and their associated LATAs can be calculated. Exhibit 5.10 contains information on LATAs served by each access node in the backbone network, with data on their population and originating traffic, together with the totals (in the last row) for the originating traffic flowing into the backbone network from this node and the population served by this node. From the node-to-node traffic matrix in Exhibit 5.11 it is known how much traffic originates from any of the access nodes addressed to any other node in the backbone network.

In order to calculate the contribution of the originating traffic from each individual LATA to the access node, the total traffic delivered to the node is multiplied by all the traffic originated in the LATA divided by the total originated traffic in the region served by the node, including the part addressed to LATAs within the region and not routed through the backbone network.

Consistent with the procedure used for the LATA-to-LATA traffic matrix, consisting of step (4b) outlined in Section 5.1.1, the contribution received by each individual LATA from the total terminating traffic in the access node is calculated in the same manner. The total terminating traffic in an access node of the backbone network is multiplied by the population of the LATA divided by the total population in the region served by the access node.

Exhibit 5.27 summarizes these calculations of the regional access traffic, listing the LATAs served by each node, their distances from the node, and the originating and terminating traffic needed for the cost calculation to be presented in Section 6.

5.3.2 15-Node Network

Following the same procedure as described in Section 5.3.1, the starting point is with data from Exhibits 5.15 (list of LATAs in each node) and 5.16 (node-to-node traffic matrix). The results are summarized in Exhibit 5.28, listing for each node in the backbone network the LATAs served, their distances from the node, their originating traffic, and their terminating traffic. As before, this completes the information needed for the cost calculations in Section 6.

5.3.3 23-Node Network

Again the starting point is with data from Exhibits 5.20 (LATA list) and 5.21 (traffic matrix). Using the same procedures as described in Section 5.3.1, the results are shown in Exhibit 5.29, which contains the data on LATA-to-node distances and originating and terminating traffic in each LATA.

5.3.4 17-Node Network

The last of the four networks is processed the same way as the others starting with data from Exhibits 5.25 (LATA list) and 5.26 (traffic matrix). Results are shown in Exhibit 5.30, listing distances from LATAs to each node, and originating and terminating traffic from/to each node.

5.4 CONVERSION FROM BUSY HOUR TRAFFIC TO CALL-MINUTES

The basic traffic model methodology, described in Section 5.1, is oriented toward the busy-hour (BH) traffic in Erlang units, because that is what determines the number of voice-grade circuits needed to satisfy the peak demand for public switched telephone traffic. The number of circuits are then used to determine the first cost (FC) for installing the backbone network for long distance services between the LATAs, and the annual cost (AC) for continuous operation of this network. However, peak traffic per se does not establish the total usage over a full 24-hour period or a full year. To accomplish this, it is necessary to convert the BH Erlang units into daily or yearly call-minutes. Together with the revenue requirement derived from the annual cost (AC) for continuous operation, the average operating cost per call-minute can be calculated. This is a much more useful measure for comparisons with other long distance services.

5.4.1 Daily Call-Minutes for Residential and Business Users

To determine total daily traffic from the BH traffic it is necessary to analyze the hourly variation of traffic over a 24 hour period. In a Special Report (SP EOP-000191, Issue 1) published in April 1985 by Bell Communications Research

(Bellcore) under the title "Trunk Traffic Engineering", it is noted that hourly variations in traffic for predominantly business central offices (CO) are different from those for residential COs. The two need to be combined in order to establish an overall total call-minute expression that converts the BH traffic (Erlang) to daily call-minutes. Exhibit 5.31 shows the hourly variations of originating calling rates for the two types of COs in graphic form and Exhibit 5.32 presents the data points from the Bellcore publication. By taking the total number of calls per day, divided by the prevailing busy hour calling rate, the result is the number of hours by which the BH traffic has to be multiplied to obtain the total daily traffic. The resulting multiplier for the conversion of BH traffic to total daily traffic was carried out in the lower part of Exhibit 5.32 with the following result:

Business CO -	9.4 times	business BH traffic
Residential CO -	13.4 times	residential BH traffic

5.4.2 Composite Busy Hour to Daily Traffic Conversion

In order to combine residential and business traffic to a composite average multiplier it is necessary to know first the BH traffic share of business traffic and residential traffic separately. The basic traffic data in the traffic model was based on the best data available from AT&T statistics, which show that total long distance traffic is originated roughly 60 percent by business and 40 percent by residential users. With these total traffic shares the necessary calculations are also included in the lower part of Exhibit 5.32, resulting in the composite conversion factor for the combined business and residential traffic as shown below:

Combined total daily traffic = 10.7 times total BH traffic

Since BH traffic in the traffic model is given in Erlang, which amounts to 60 call-minutes, the conversion factor for the determination of total call-minutes will be:

Daily call-minutes = 642 times BH traffic in Erlang

5.5 ESTIMATE OF LOCAL DISTRIBUTION COSTS ASSOCIATED WITH IX-CALLS

In Section 5.4, the traffic and cost model was applied to the regional distribution network from the nodes in the long distance backbone network to the POP in each LATA served by a node. In order to obtain the total end-to-end user cost, the cost of local distribution within a LATA also has to be determined.

5.5.1 Estimate of the Average Cost for Local End Links

The cost of the end link within the local distribution network -- i.e. from the LATA POP to the end user -- cannot be derived from any model because each end link originating and completing an IX call will follow a different path. For this reason only the average cost per call can be derived from operating statistics of the common carrier industry. Using the FCC Statistics of Communications Common Carriers, the USTA Telephone Statistics, and Annual Reports from the divested Bell Operating Companies (BOCs), we can estimate the average cost associated with the local end links within a LATA. From these sources the cost for the use of local exchange facilities per IX call is in the range of \$1.06 to \$1.68 per call.

5.5.2 Average Holding Time for IX Calls

To derive at the cost per call-minute, the average holding time for an interexchange call has to be known. Unfortunately, there are no recent publications on holding times of interexchange (IX) calls available. Before the AT&T divestiture, records were kept only for toll calls, i.e. calls outside the flat rate local calling area. If those toll call records were used and extrapolated to 1985, the average holding time of toll calls would be approximately 9.0 minutes.

Thus, an estimate for the average cost of a call-minute for the completion of a long distance call through the local exchange area distribution network appears to be 11.5 to 18.7 cents per call-minute.

This cost has to be added to the cost per call-minute in the regional network in order to arrive at the total distribution cost associated with the backbone network. This total, when added to the per call-minute cost in the backbone network, represents the total end-to-end cost from one user in a LATA to another user in another LATA.

Population Group	Rank	State	Populatr. (000)	LATA #	NPA's	Interexchange CLLI	Access Point Coordinates V H
New York City, PMSA	1	NY	8291	132	212, 914	NYCMNY54	4993 1409
Los Angeles, PMSA	2	CA	7818	730	213, 805, 818	LSANCA01	9213 7878
Chicago, PMSA	3	IL	6119	358	312, 815	CHCGILCL	5987 3426
Philadelphia, PMSA	4	PA, NJ	4760	228	215, 609	PHLAPAMK	5250 1459
Detroit, PMSA	5	MI	4347	340	313	DTRTMIBA	5536 2829
Houston, PMSA	6	TX	3161	560	713, 409	HSTNTX01	8938 3536
Boston, PMSA	7	MA	2804	128	617	BSTNMAFR	4422 1248
Washington	8	DC, MD, VA	3370	236	202, 301, 703	WASHDCSW	5623 1578
Nassau/Suffolk, PMSA	9	NY	2655	132	516	GRCYNYGC	4958 1335
St. Louis	10	MO	2396	520	314, 618	STLSMO01	6807 3483
Atlanta	11	GA	2305	438	404	ATLNGACS	7259 2085
Baltimore	12	MD	2232	238	301	BLTNMDCH	5511 1574
Minneapolis/St. Paul	13	MN, WI	2208	628, 352	612, 715	MPLSMNDT	5780 4526
Pittsburgh, PMSA	14	PA	2198	234	412	PITBPA06	5619 2184
Dallas, PMSA	15	TX	2170	552	214, 817	DLSTXHA	8432 4033
Ann Arbor, PMSA	16	CA	2059	730	714	ANHMCA01	9250 7810
San Diego	17	CA	2015	732	619	SDNGCA02	9462 7632
Newark, PMSA	18	NJ	1882	224	201	NWRKNJ02	5016 1430
Cleveland, PMSA	19	OH	1878	320, 325	216	CLEVOH02	5575 2544
Oakland, PMSA	20	CA	1863	722	415	OKLDCA03	8486 8696
Tampa/St. Petersburg	21	FL	1770	952, 454	813, 904	SPBGLXA	8225 1159
Riverside/San Bernardino, PMSA	22	CA	1738	730	619, 714	SNBRCAIF	9173 7709
Miami, PMSA	23	FL	1719	460	305	MIAMFLSH	8337 537
Seattle, PMSA	24	WA	1677	674	206	STTLWA06	6337 8896
Phoenix	25	AZ	1664	666	602	PHNXAZNA	9133 6748
Denver, PMSA	26	CO	1561	656	303	DNVRCOMA	7500 5899
San Francisco, PMSA	27	CA	1518	722	415	SNFCCA01	8492 8719
Kansas City	28	MO, KA	1464	524, 534	816, 913	KSCYMO55	7027 4202
Cincinnati, PMSA	29	OH, KY, IN	1404	922	513, 606, 812	CNCNOHWS	6263 2680
Milwaukee, PMSA	30	WI	1397	356	414	MILWMI48	5788 3588
San Jose, PMSA	31	CA	1360	722	408	SNJSCA02	8583 8619
New Orleans	32	LA	1316	490	504	NWORLAMA	8482 2638
Bergen/Passaic, PMSA	33	NJ	1291	224	201	RCPKNJ01	4975 1440
Columbus	34	OH	1263	324	614	CLMBOH11	5372 2554
Norfolk	35	VA	1227	252, 248	804	NWNVVAHU	5908 1259
Sacramento	36	CA	1197	726	916	SCRMCA01	8303 8581
Indianapolis	37	IN	1182	336	317	IPLSIN01	6272 2992
San Antonio	38	TX	1169	566	512	SNANTXCA	9225 4063
Portland, PMSA	39	OR	1129	672	503	PTLDOR69	6799 8915
Fort Worth, PMSA	40	TX	1096	552	817	FTWOTXED	8479 4123
Fort Lauderdale, PMSA	41	FL	1073	460	305	PMBHFLMA	8264 580
Charlotte/Gastonia	42	NC	1019	422	704, 803	CHRLNCCA	6657 1698
Salt Lake City	43	UT	1006	660	801	SLKCUTMA	7574 7066
Buffalo	44	NY	1002	140	716	BFLONYFR	5076 2327
Rochester	45	NY	990	974, 136, 140	716, 315	ROCHNYIA	4913 2195
Oklahoma City	46	OK	957	536	405	OKCYOKCE	7946 4372
Louisville	47	KY, IN	956	462	502, 812	LSVLKYAP	6528 2773
Dayton	48	OH	936	328	513	DYTNOH22	6112 2704
Memphis	49	TN, MO, AR	930	468, 528	901, 601, 501	MMPHTNMA	7471 3127
Midland/Sandusky/Hond, PMSA	50	NJ	908	224	201	NBWKNJNB	5085 1434
Birmingham	51	AL	891	476	205	BRHMALMT	7518 2446
Monmouth/Ocean, PMSA	52	NJ	884	224	201	FRHDNJFH	5109 1380
Nashville	53	TN	878	470	615	NSVLTNMT	7009 2711
Greensboro	54	NC	876	424, 422	919, 704	GNBONCEU	6402 1639
Albany	55	NY	841	134	518	ALBYNYSS	4639 1629
Orlando	56	FL	793	458	305	ORLDFLMA	7954 1032
Richmond	57	VA	785	248	804	RCMDVAGR	5906 1472
Jacksonville	58	FL	773	452	904	JCVLFLCL	7642 1276
Scranton/Wilkes-Barre	59	PA	727	232	717	SCTNPASC	5042 1715
Hartford	60	CT	721	920	203	HRFRCT02	4687 1373
Tulsa	61	OK	721	538	918	TULSOKTB	7708 4176
West Palm Beach	62	FL	659	460	305	WPBHFLAN	8162 608
Akron	63	OH	652	325	216	AKRNOH25	5637 2472
Syracuse	64	NY	650	136	315	SYRCNYSU	4797 1990
Allentown/Bethlehem	65	PA	643	228, 232, 224	215, 717, 201	ALTWPAAL	5167 1586
Gary	66	IN	640	358	219	GARYINGO	6019 3354
Providence, PMSA	67	RI	623	130	401	PRVDRIGR	4550 1219
Austin	68	TX	618	558	512	AUSTTXGR	9004 3397
Grand Rapids	69	MI	611	348	616	GDRPMIBL	5628 3261
Toledo	70	OH	608	326	419	TOLDOH21	5703 2820
Omaha	71	NE, IA, SC	604	644	402, 712	OMAHNENW	6687 4595

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Population Group	Rank	State	Populatr. (000)	LATA #	NPA's	Interexchange CLLI	Access Point Coordinates
							V H
Greenville	72	SC	590	430	803	GNVLSCDT	6872 1895
Raleigh/Durham	73	NC	590	426, 951	919	RLGHNCDT	6344 1434
Knoxville	74	TN	579	474	615	KNVLTNMA	6801 2251
Oxnard/Ventur., PMSA	75	CA	576	730	805	VNTRCA02	9191 8072
Tucson	76	AZ	572	668	602	TCSNAZMA	9346 6487
Harrisburg	77	PA	564	226	717	HRBGPAHA	5363 1733
Jersey City, PMSA	78	NJ	562	224	201	HLDNNJ01	4983 1456
Fresno	79	CA	545	728	209	FRSNC01	8669 8239
Wilmington, PMSA	80	DE, MD, NJ	534	228, 238, 222	302, 301, 609	WLMGDEWL	5326 1486
Baton Rouge	81	LA	531	492	504	BTRGLAMA	8476 2874
Youngstown	82	OH	522	322	216	YNTWOH74	5557 2354
Las Vegas	83	NV	521	721	702	LSVGNVXB	8665 7411
Springfield	84	MA	515	126	413	SPFDMAHO	4620 1408
El Paso	85	TX	510	540	915	ELPSTXMA	9231 5655
Tacoma, PMSA	86	WA	510	674	206	TACHMAFA	6415 8907
New Haven	87	CT	503	920	203	NWHNCT02	4792 1342
Little Rock	88	AR	487	528	501	LTRKARFR	7721 3448
Charleston	89	SC	464	436	803	CHTNSCDT	7022 1280
Mobile	90	AL	459	480	205	MOBLALAP	8167 2367
Lake County, PMSA	91	IL	455	358	312	GYLKILGL	5929 3531
Bakersfield	92	CA	447	734	805	BKFDC012	8946 8059
Albuquerque	93	NM	443	664	505	ALBQNMMA	8549 5887
Bridgpt/Milfd, PMSA	94	CT	442	920	203	BRPTCT01	4841 1360
Johnson City	95	TN, VA	442	956, 474	615, 703	JHCYTNXC	6590 2062
Flint	96	MI	438	340	313	FLNTMIIN	5462 2993
Wichita	97	KS	429	532	316	WCHTKSAM	7489 4520
Columbia	98	SC	428	434	803	CLMASCSN	6902 1587
Chattanooga	99	TN, GA	427	472	615, 404	CHTGTNDT	7096 2357
Saginaw	100	MI	414	344	517	SGNWMIFA	5404 3074
Lansing	101	MI	411	346, 344	517	LNGMIMHW	5583 3081
Worcester	102	MA	404	128	617	WRCSMACE	4513 1330
Canton	103	OH	403	325	216	CNTNOH45	5676 2420
Beaumont	104	TX	388	562	409	BUHMTXTE	8777 3344
York	105	PA	388	226	717	YORKPAXH	5402 1674
Davenport	106	IA, IL	384	634	319, 309	DVNPIADT	6273 3818
Stockton	107	CA	379	738	209	SKTNCA01	8435 8531
Des Moines	108	IA	375	632	515	DESMIADT	6472 4275
Jackson	109	MS	374	482	601	JCSNMSCP	8035 2879
Lancaster	110	PA	372	226	717	MANHPAXE	5335 1653
Peoria	111	IL	362	368	309	PEORILPJ	6362 3592
Vallejo, PMSA	112	CA	362	722	707	BKLYCA01	8473 8697
Augusta	113	GA, SC	361	442	404, 803	AGSTGAMT	7090 1675
Joliet, PMSA	114	IL	360	358	815	JOLTILJD	6088 3454
Corpus Christi	115	TX	356	564	512	CRCHTXTU	9477 3738
Shreveport	116	LA	353	486	318	SHPTLAMA	8271 3495
Lawrence/Hvhl, PMSA	117	MA	350	128	617	LWRNMACA	4373 1311
Fort Wayne	118	IN	349	334, 332	219	FTWYINXA	5942 2983
Spokane	119	WA	348	676	509	SPKNWA01	6247 8177
Lakeland/WinterHvn	120	FL	346	952	813	WNHNLXA	8087 1033
Colorado Springs	121	CO	340	658	303	CLSPCDMA	7680 5813
Huntington	122	WV	336	254, 466, 324	304, 606, 614	HNTNWVDT	6211 2299
Madison	123	WI	330	354	608	MDSNWI11	5888 3796
Lexington	124	KY	323	462	606, 502	WDDYKYMA	6491 2658
McAllen	125	TX	323	568	512	MCALTXHI	9877 3761
Santa Rosa, PMSA	126	CA	321	722	707	SNRSCA01	8355 8786
Utica/Rome	127	NY	321	136	315	UTICNYUT	4703 1879
Aurora	128	IL	320	358	312	AURRILAR	6062 3511
Santa Barbara	129	CA	317	740	815	SNBBCAXF	9171 8150
Reading	130	PA	315	228	215	RDNBPARK	5258 1612
Pensacola	131	FL	313	448	904	PNSCFLBL	8147 2200
Salinas/Seasd/Mnty	132	CA	311	736	408	SLNSCA01	8723 8561
Trenton	133	NJ	311	222	609	TRENNJTE	5165 1440
Pawtucket, PMSA	134	RI, MA	309	130, 128	401, 617	PRVDRIGR	4550 1219
Melbourne	135	FL	307	458	305	COCOFMA	7924 904
Appleton	136	WI	297	350	414	DYBHFLMA	7793 1049
Daytona Beach	137	FL	290	456	904	MDSTCA02	8498 8473
Modesto	138	CA	287	738	209	MDSTCA02	8498 8473
Atlantic City	139	NJ	284	220	609	ATCYNJAC	5284 1284
Montgomery	140	AL	281	478	205	NTGMALMT	7692 2247
Erie	141	PA	280	924	814	ERIEPAXH	5320 2397
Rockford	142	IL	280	360	815	RCFRILRT	6021 3675

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Population Group	Rank	State	Populatn. (000)	LATA #	NPA's	Interexchange Access Point CLLI Coordinates	V	H
Evansville	143	IN,KY	279	330,464	812,502	EVVLINQ3	6729	3018
Macon	144	GA	274	446	912	MACNGANT	7364	1866
Lorain,PMSA	145	OH	273	320	216	ELYROMXA	5635	2587
Charleston	146	WV	269	254	304	CHTNWVLE	6152	2174
Eugene	147	OR	269	670	503	EUGNORS3	7128	8955
Orange County,PMSA	148	NY	268	133	914	HONRNYXA	4913	1510
Binghamton	149	NY	265	138	607	BNGHNYHY	4943	1837
Visalia/Tulr/Prtvl	150	CA	265	728	209	EXTRACAXF	8749	8112
Hamilton/Mdlt,PMSA	151	OH	261	328,922	513	MDTWOH42	6175	2707
Johnstown	152	PA	260	230	814	JHTWPAXJ	5542	2021
Salem/Gloucestr,PMSA	153	MA	259	128	617	BSTNMABO	4422	1250
Ann Arbor,PMSA	154	MI	258	340	313	CLTNMIXG	5661	2927
Duluth	155	MN,WI	258	624,352	218,715	DLTHMME	5352	4529
New London	156	CT,RI	256	920,130	203,401	NWLNCTO2	4700	1242
Salem	157	OR	255	672	503	SALHORS8	6932	8960
Poughkeepsie	158	NY	250	133	914	PGHKNYSH	4822	1525
Fayetteville	159	NC	249	949	919	FYVLNCXA	6501	1385
Lovell,PMSA	160	MA,NH	247	128,122	617,603	TWBYNARO	4397	1306
Columbus	161	GA,AL	242	438	404,205	CLMBGANT	7557	2044
Fort Myers	162	FL	241	952	813	SRSTFLXA	8296	1094
South Bend	163	IN	239	332	219	SBNDINO1	5920	3206
Provo/Orem	164	UT	236	660	801	PROVUTMA	7679	7004
Brownsville	165	TX	233	568	512	BWVLTCLI	9861	3606
Savannah	166	GA	231	440	912	SVNHGABS	7269	1379
Sarasota	167	FL	227	952	813	SRSTFLXA	8296	1094
Niagara Falls,PMSA	168	NY	225	140	716	BFLONYFR	5076	2327
Roanoke	169	VA	221	244	703	RONKVALK	6196	1802
Lubbock	170	TX	219	544	806	LBCKTXPS	8598	4962
Killeen	171	TX	216	556	818	KLLNTXIC	8836	4048
Lafayette	172	LA	216	488	318	LFYTLAMA	8587	2997
Galveston	173	TX	213	560	409	HSTNTXO1	8938	3536
Springfield	174	MO	213	522	417	SPFDMOMC	7311	3834
Kalamazoo	175	MI	211	348	517	KLHNMIFA	5750	3177
Hickory	176	NC	209	422	704	HCKRNCKA	6610	1832
Reno	177	NV	209	720	702	RENONVO2	8064	8323
Huntsville	178	AL	207	477	205	HNVALMT	7267	2534
Boulder,PMSA	179	CO	206	656	303	MEADCOMA	7399	5931
Waterbury	180	CT	206	920	203	WLCTCTO0	4748	1386
Tallahassee	181	FL	203	953,450	904	TLHSFLXA	7876	1715
Beaver County,PMSA	182	PA	202	234	412	WSVWPANE	5610	2194
Vancouver,PMSA	183	WA	202	672	206	PTLDOR69	6799	8915
Portsmouth	184	NH,ME	201	122,120	603,207	MNCHNHCO	4354	1388
Lincoln	185	NE	200	958	402	LNCLNEXL	6823	4674
Portland	186	ME	200	120	207	PTLDMECH	4121	1334
Santa Cruz,PMSA	187	CA	200	722	408	LSGTCAIG	8625	8628
Stanford,PMSA	188	CT	200	920,132	203	SMFRCTO1	4897	1388
Biloxi/Gulfport	189	MS	193	484	601	BILXMSMA	8296	2481
Houma/Thibodeaux	190	LA	190	490	504	NWORLAMA	8482	2638
Springfield	191	IL	188	374	217	SPFDILES	6540	3513
Brockton,PMSA	192	MA	189	128	617	BRTNMACO	4465	1205
Amarillo	193	TX	186	546	806	AMRLTXO2	8266	5075
Brazoria,PMSA	194	TX	186	560	409	HSTNTXO1	8938	3536
Boise	195	ID	184	652	208	BOISIDMA	7094	7866
Gainesville	196	FL	184	454,452	904	GSVFLMA	7840	1310
Wheeling	197	WV,OH	182	256,324	304,614	WLNQWVCP	5754	2242
Fort Pierce	198	FL	180	460	305	PTSLFLSO	8093	696
Green Bay	199	WI	180	350	414	GNBYWIO1	5512	3749
Waco	200	TX	178	556	817	WACOTXO1	8705	3994
Lake Charles	201	LA	177	488	318	LKCHLADT	8680	3203
Yakima	202	WA	177	676	509	YAKHMAO2	6533	8607
Danbury,PMSA	203	CT	176	920	203	HNTNCTO0	4816	1370
Racine,PMSA	204	WI	173	356	414	RACNWIO1	5836	3434
Cedar Rapids	205	IA	169	635	319	CORRIADT	6262	4021
Champaign/Urbana	206	IL	169	370	217	CHMPTLCP	6371	3336
Longview/Marshall	207	TX	169	554	214	LGWVTXPL	8347	3661
New Bedford	208	MA	169	128	617	NBFRMAAE	4532	1131
St.Cloud	209	MN	169	626,628	612	STCDMNTD	5721	4703
Fort Smith	210	AR,OK	167	526,538	501,918	FTSMARSU	7752	3855
Bradenton	211	FL	166	952	813	SRSTFLXA	8296	1094
Ashville	212	NC	165	420	704	AHVLCOM	6747	2001
Benton Harbor	213	MI	164	348	616	THRRMIXG	5819	3147

EXHIBIT 5.1 1983 MSA POPULATION AND CORRESPONDING LATA DATA BASE, Page 4 of 5

Population Group	Rank	State	Populatr. (000)	LATA #	NPA's	Interexchange CLLI	Access Point Coordinates V H
Waterloo	214	IA	163	635	319	WTRLIADT	6206 4167
Fort Collins	215	CO	162	656	303	NIWTCOMA	7419 5943
Bremerton	216	WA	160	674	206	STTLWA06	6337 8896
Fall River, PMSA	217	MA, RI	159	128, 130	617, 401	FLRVNMAN	4543 1170
Parkersburg	218	WV, OH	159	254, 324	304, 614	PRBGWVKT	5975 2268
Steubenville	219	OH, WV	158	324, 256	614, 304	SBVIOH28	5690 2262
Topeka	220	KS	158	534	913	TPKAKSJA	7110 4369
Chico	221	CA	155	724	916	CHICCA01	8059 8668
Muskegon	222	MI	154	348	616	GDRPMI8L	5628 3261
Lima	223	OH	153	923	419	LIMAOHXA	5921 2799
Clarkville	224	TN, KY	151	470, 464	615, 502	NSVLTNMT	7009 2711
Nashua	225	NH	151	122	603	MNCHNHCO	4354 1388
Richland	226	WA	151	676	509	KNWCWAXA	6595 8400
Ocala	227	FL	148	454	904	OCALFLXA	7908 1227
Jackson	228	MI	147	346	517	JCSNMIMN	5664 3007
Lynchburg	229	VA	142	250	804	LYBGVACH	6094 1703
Monroe	230	LA	142	486	318	MONRLAMA	8149 3219
New Britain	231	CT	142	920	203	HRFRCT02	4687 1373
Tyler	232	TX	141	554	214	LNDLTXTU	8396 3774
Fargo	233	ND, MN	140	636	701, 218	FARGNDBC	5614 5181
Elkhart	234	IN	139	332	219	EKHTINXA	5895 3168
Janesville/Beloit	235	WI	139	354	608	JNVLWIO1	5936 3705
Battle Creek	236	MI	138	348	616	BTCKMI8C	5712 3124
Tuscaloosa	237	AL	138	476	205	TSCALAMO	7634 2550
Alexandria	238	LA	137	486	318	ALXNLAMA	8409 3168
Odessa	239	TX	137	542	915	ODSSTXRE	8991 4945
Olympia	240	WA	137	674	206	TACHWAFA	6415 8907
Anderson	241	SC	138	430	803	ARNSNSCHA	6960 1895
Florence	242	AL	136	477	205	DCTRALMT	7325 2584
Terre Haute	243	IN	136	938	812	TRRHINXA	6431 3145
Altoona	244	PA	135	230	814	ALNAPAAL	5460 1972
Anderson	245	IN	135	336	317	MUNCINO1	6129 2924
Athens	246	GA	135	438	404	WASHGAXA	7113 1823
Eau Claire	247	WI	134	352	715	EUCLWIO1	5697 4262
Manchester	248	NH	134	122	603	MNCHNHCO	4354 1388
Medford	249	OR	134	670	503	MDFDOR33	7504 8891
Vineland, PMSA	250	NJ	133	222	609	BRLNNJ8R	5257 1407
Decatur	251	IL	130	374	217	DCTRILDC	6478 3414
Greeley	252	CO	130	656	303	NIWTCOMA	7419 5943
Joplin	253	MO	130	522	417	JPLNMOMA	7422 4018
Mansfield	254	OH	129	326	419	ASLDONXA	5745 2560
Norwalk, PMSA	255	CT	128	920	203	SMFRCT01	4897 1388
Wichita Falls	256	TX	128	548	817	WCFLTINI	8323 4412
Sharon	257	PA	127	234	412	ELCYPAC	5569 2275
Pascagoula	258	MS	126	484	601	BILXMSHA	8296 2481
Dothan	259	AL	125	478	205	DTHNALXA	7830 1980
Muncie	260	IN	125	336	317	MUNCINO1	6129 2924
Redding	261	CA	125	724	916	RDNCGAO2	7880 8778
Anniston	262	AL	124	476	205	ODVLALXA	7451 2397
Pueblo	263	CO	124	658	303	PUBLICOSU	7794 5746
Lafayette	264	IN	123	336	317	LFYITINXA	6207 3167
Kenosha, PMSA	265	WI	122	356	414	RACNWI01	5836 3534
Lavton	266	OK	122	536	405	LWTNOKTB	8178 4454
Abilene	267	TX	121	550	915	ABLNTTXOR	8698 4513
Fort Walton Beach	268	FL	120	448	904	FTWBFLEXA	8094 2096
Burlington	269	VT	119	124	802	BURLVTMA	4270 1808
Jacksonville	270	NC	119	949	919	JCVLNCXA	6412 1131
Sioux City	271	IA, NB	118	630	712, 402	SXCXYADT	6468 4767
Williamsport	272	PA	118	232	717	WLPTPAWI	5200 1873
Charlottesville	273	VA	117	928	804	CHVLVAXA	5919 1683
Texarkana	274	AR, TX	117	554	501, 214	TXRKTXXA	8111 3626
Albany	275	GA	116	444	912	ALBYGAMA	7650 1816
Billings	276	MT	116	650	406	BLNGMTHA	6390 6790
Sioux Falls	277	SD	114	640	605	SXFLSDCO	6278 4901
Florence	278	SC	113	432	803	FLRNSCHA	6745 1417
Hagerstown	279	MD	113	240	301	HGTWHDHG	5555 1772
State College	280	PA	113	230	814	ALNAPAAL	5460 1972
Glens Falls	281	NY	112	134	518	ALBYNYSS	4639 1629
Wausau	282	WI	112	350	715	HAUSWIXA	5541 4016
Bryan	283	TX	111	560	409	BRYNTXXA	8827 3788
Danville	284	VA	111	250	804	DAVLVADA	6270 1641

EXHIBIT 5.1 1983 MSA POPULATION AND CORRESPONDING LATA DATA BASE, Page 5 of 5

Population Group	Rank	State	Populatn. (000)	LATA #	NPA's	Interexchange CLLI	Access Point Coordinates V H
Laredo	285	TX	111	566	512	MRCYTXXA	9660 4001
Bellingham	286	WA	110	674	206	BLHMA01	6087 8933
Bloomington/Normal	287	IL	121	366	309	BLTNILXD	6358 3483
Wilmington	288	NC	109	428	919	WLMGNCPO	6559 1143
Yuba City	289	CA	108	726	916	STAHCAL2	8227 8352
Midland	290	TX	107	542	915	MDLDTXHU	8934 4890
Cumberland	291	MD, WV	106	240	301, 304	CHLDNDCH	5650 1917
Columbia	292	MO	104	521	314	CLHAMOXA	6901 3841
Gadsden	293	AL	104	476	205	CNTRALXA	7298 2332
Naples	294	FL	104	952	813	SRSTFLXA	8296 1094
Fayetteville	295	AR	103	526	501	FYVLARHI	7599 3872
Panama City	296	FL	103	450	904	PNCYFLNA	8058 1914
Burlington	297	NC	102	424	919	GNBONCEU	6402 1639
Kankakee	298	IL	102	358	815	KNKKILKK	6149 3381
Kokomo	299	IN	102	336	317	KOKHINO1	6134 3064
Las Cruces	300	NM	102	664	505	LSCRNMMA	9132 5742
Santa Fe	301	NM	102	664	505	ALBQNMMA	8549 5887
Sheboygan	302	WI	101	356	414	PLMOWIXA	5655 3665
Bloomington	303	IN	100	338	812	BLTNINO1	6417 2984
Elmira	304	NY	96	138	607	SPNCNYXA	4980 1929
Fitchburg/Leominster	305	MA	95	128	617	ASHBMA00	4444 1389
Bismarck	306	ND	84	638	701	BSMRNDBC	5843 5735
San Angelo	307	TX	94	961	915	SANGTXXA	8944 4563
Sherman/Denison	308	TX	94	552	214	WHWRTXXA	8262 4027
Rochester	309	MN	93	620	507	ROCHMNRO	5916 4326
Dubuque	310	IA	92	634	319	DUBQIATC	6090 3924
La Crosse	311	WI	92	354	608	LCRSWIIC	5877 4123
Pine Bluff	312	AR	90	530	501	PNBLARJE	7803 3358
Owensboro	313	KY	87	464	502	OWBOKYMA	6731 2927
St. Joseph	314	MO	86	524	816	STJSMODN	6913 4301
Leviston/Auburn	315	ME	85	120	207	BWHMMEHA	4024 1340
Bangor	316	ME	84	120	207	BNGRMEPA	3777 1323
Iowa City	317	IA	83	635	319	IWCYIATC	6315 3971
Middletown, PMSA	318	CT	82	920	203	HGMNCT00	4722 1321
Great Falls	319	MT	81	648	406	GRFLNTMA	6120 7282
Pittsfield	320	MA	81	126	413	PERUMACO	4608 1512
Casper	321	WY	77	654	307	CSPRWYMA	6916 6297
Victoria	322	TX	74	564	512	CRCHTXTU	9477 3738
Bristol	323	CT	74	920	203	WLCTCT00	4748 1386
Lawrence	324	KS	70	534	913	TPKAKSJA	7110 4369
Grand Forks	325	ND	67	636	701	GDFRNDBC	5418 5300
Enid	326	OK	68	536	405	GLCOOKNA	7755 4337

LATA #	State	Sta.Pop.	NPA's	Counties	LATA Pop. (1000)	% State	St.Acs.Ln (1000)	Zacs.Den	LATA AL (1000)	DrBH/CCS (1000)	InterLATA (1000)
120	ME	1146	207	all	1146	100.00	496.4	43.32	496.4	2482.0	13.8
122	NH	958	603	all	958	100.00	470.1	49.07	470.1	2350.5	13.1
124	VT	526	802	all	526	100.00	245.0	46.58	245.0	1225.0	6.8
126	MA	5767	413	4	795	13.79	2928.1	50.77	403.6	2018.2	11.2
128	MA	5767	617	10	4970	86.18	2928.1	50.77	2523.4	12617.2	70.1
130	RI	955	401	all	955	100.00	437.1	45.77	437.1	2185.5	12.1
920	CT	3137	203	all	3077	98.09	1616.0	51.51	1585.1	7925.5	44.0
132	NY	17667	212,516,914	10	10946	61.96	9372.1	53.05	5806.7	29033.5	161.3
132	CT	3137	203	1	60	1.91	1616.0	51.51	30.9	154.5	0.9
133	NY	17667	914	4	737	4.17	9372.1	53.05	391.0	1954.8	10.9
134	NY	17667	518	15	1257	7.11	9372.1	53.05	666.8	3334.1	18.5
136	NY	17667	315,607	14	1546	8.75	9372.1	53.05	820.1	4100.7	22.8
138	NY	17667	607	8	628	3.55	9372.1	53.05	333.1	1665.7	9.3
140	NY	17667	716	7	1603	9.07	9372.1	53.05	850.4	4251.8	23.6
974	NY	17667	315,716	4	951	5.38	9372.1	53.05	504.5	2522.5	14.0
220	NJ	7468	609	2	285	3.82	4276.5	57.26	163.2	816.0	4.5
222	NJ	7468	609	6	1570	21.02	4276.5	57.26	899.0	4495.2	25.0
224	NJ	7468	201	13	5612	75.15	4276.5	57.26	3213.7	16068.4	89.3
226	PA	11895	215,717,814	10	1472	12.37	5753.8	48.37	712.0	3560.1	19.8
228	PA	11895	215	8	4516	37.97	5753.8	48.37	2184.5	10922.3	60.7
228	DE	606	302	3	606	100.00	324.0	53.47	324.0	1620.0	9.0
230	PA	11895	717,814	16	986	8.29	5753.8	48.37	476.9	2384.7	13.2
232	PA	11895	215,717,814	19	1487	12.50	5753.8	48.37	719.3	3596.4	20.0
234	PA	11895	412	11	2996	25.19	5753.8	48.37	1449.2	7246.1	40.3
924	PA	11895	814	3	435	3.66	5753.8	48.37	210.4	1052.1	5.8
236	DC	623	202	all	623	100.00	782.4	125.59	782.4	3912.0	21.7
236	MD	4305	301	4	1418	32.94	2294.4	53.30	755.7	3778.7	21.0
236	VA	5550	703	10	1229	22.14	2662.2	47.97	589.5	2947.6	16.4
238	MD	4305	301	8	2307	53.59	2294.4	53.30	1229.5	6147.7	34.2
240	MD	4305	301	4	337	7.83	2294.4	53.30	179.6	898.0	5.0
240	WV	1965	304	4	116	5.90	733.8	37.34	43.3	216.6	1.2
242	MD	4305	301	8	241	5.60	2294.4	53.30	128.4	642.2	3.6
244	VA	5550	703	34	921	16.59	2662.2	47.97	441.8	2208.9	12.3
246	VA	5550	703	14	276	4.97	2662.2	47.97	132.4	662.0	3.7
248	VA	5550	804	34	1033	18.61	2662.2	47.97	495.5	2477.5	13.8
250	VA	5550	804	11	342	6.16	2662.2	47.97	164.0	820.2	4.6
252	VA	5550	804	18	1304	23.50	2662.2	47.97	625.5	3127.5	17.4
927	VA	5550	703	2	78	1.41	2662.2	47.97	37.4	187.1	1.0
928	VA	5550	703	4	117	2.11	2662.2	47.97	56.1	280.6	1.6
929	VA	5550	703	1	28	0.50	2662.2	47.97	13.4	67.2	0.4
254	WV	1965	304	25	1054	53.64	733.8	37.34	393.6	1968.0	10.9
256	WV	1965	304	25	678	34.50	733.8	37.34	253.2	1265.9	7.0
932	WV	1965	304	2	123	6.26	733.8	37.34	45.9	229.7	1.3
320	OH	10745	216	5	2139	19.91	4866.0	45.29	968.7	4843.4	26.9
322	OH	10745	216	3	636	5.92	4866.0	45.29	288.0	1440.1	8.0
324	OH	10745	614	29	2227	20.73	4866.0	45.29	1008.5	5042.6	28.0
325	OH	10745	216	6	1256	11.69	4866.0	45.29	568.8	2844.0	15.8
326	OH	10745	419	18	1290	12.01	4866.0	45.29	584.2	2921.0	16.2
328	OH	10745	513	11	1187	11.05	4866.0	45.29	537.5	2687.7	14.9
922	OH	10745	513	4	1360	12.66	4866.0	45.29	615.9	3079.5	17.1
922	IN	5479	812	3	48	0.88	2312.0	42.20	20.3	101.3	0.6
922	KY	3714	606	6	298	8.02	1382.0	37.21	110.9	554.4	3.1
923	OH	10745	419	12	653	6.08	4866.0	45.29	295.7	1478.6	8.2
330	IN	5479	812	9	369	6.73	2312.0	42.20	155.7	778.5	4.3
332	IN	5479	219	14	793	14.47	2312.0	42.20	334.6	1673.1	9.3
334	IN	5479	219	9	530	9.67	2312.0	42.20	223.6	1118.2	6.2
336	IN	5479	317	26	2042	37.27	2312.0	42.20	861.7	4308.4	23.9
338	IN	5479	812	17	532	9.71	2312.0	42.20	224.5	1122.5	6.2
937	IN	5479	317	6	178	3.25	2312.0	42.20	75.1	375.6	2.1
938	IN	5479	812	3	157	2.87	2312.0	42.20	66.3	331.3	1.8
340	MI	9069	313,517	11	5174	57.05	4393.0	48.44	2506.3	12531.4	69.6
342	MI	9069	906	15	320	3.53	4393.0	48.44	155.0	775.0	4.3
342	WI	4751	715	1	4	0.08	2231.7	46.97	1.9	9.4	0.1
344	MI	9069	517	23	987	10.88	4393.0	48.44	478.1	2390.5	13.3
346	MI	9069	517	4	544	6.00	4393.0	48.44	263.5	1317.6	7.3
348	MI	9069	517,616	30	2046	22.56	4393.0	48.44	991.1	4955.4	27.5
350	WI	4751	414,715	24	1128	23.74	2231.7	46.97	529.9	2649.3	14.7
352	WI	4751	715	18	529	11.13	2231.7	46.97	248.5	1242.4	6.9
354	WI	4751	608	16	931	19.60	2231.7	46.97	437.3	2186.6	12.1
356	WI	4751	414	12	2158	45.42	2231.7	46.97	1013.7	5068.4	28.2
358	IL	11486	312,815	11	7518	65.45	5820.4	50.67	3809.7	19048.3	105.8
358	IN	5479	219	3	655	11.95	2312.0	42.20	276.4	1382.0	7.7
360	IL	11486	312,815	4	362	3.15	5820.4	50.67	183.4	917.2	5.1

LATA #	State	Sta.Pop.	MPA's	Counties	LATA Pop. (1000)	% State	St.Acs.Ln (1000)	ZAcs.Den	LATA AL (1000)	UrBH/CCS (1000)	InterLATA (1000)
362	IL	11486	618	14	365	3.18	5820.4	50.67	185.0	924.8	5.1
364	IL	11486	309,815	5	268	2.33	5820.4	50.67	135.8	679.0	3.8
366	IL	11486	217,309,815	4	225	1.96	5820.4	50.67	114.0	570.1	3.2
368	IL	11486	309,815	9	506	4.41	5820.4	50.67	256.4	1282.0	7.1
370	IL	11486	217	4	313	2.73	5820.4	50.67	158.6	793.0	4.4
374	IL	11486	217	7	391	3.40	5820.4	50.67	198.1	990.7	5.5
376	IL	11486	217,309	7	184	1.60	5820.4	50.67	93.2	466.2	2.6
976	IL	11486	217	8	279	2.43	5820.4	50.67	141.4	706.9	3.9
977	IL	11486	309	5	171	1.49	5820.4	50.67	86.7	433.3	2.4
978	IL	11486	618	10	167	1.45	5820.4	50.67	84.6	423.1	2.4
420	NC	6082	704	13	467	7.68	2656.3	43.67	204.0	1019.8	5.7
422	NC	6082	704	20	1707	28.07	2656.3	43.67	745.5	3727.6	20.7
422	SC	3264	803	2	166	5.09	1283.2	39.31	65.3	326.3	1.8
424	NC	6082	919	14	1160	19.07	2656.3	43.67	506.6	2533.1	14.1
426	NC	6082	919	6	777	12.78	2656.3	43.67	339.4	1696.8	9.4
428	NC	6082	919	6	361	5.94	2656.3	43.67	157.7	788.3	4.4
949	NC	6082	919	10	725	11.92	2656.3	43.67	316.6	1583.2	8.8
951	NC	6082	919	29	868	14.27	2656.3	43.67	379.1	1895.5	10.5
430	SC	3264	803	12	1006	30.82	1283.2	39.31	395.5	1977.5	11.0
430	NC	6082	704	1	14	0.23	2656.3	43.67	6.1	30.6	0.2
432	SC	3264	803	12	626	19.18	1283.2	39.31	246.1	1230.5	6.8
434	SC	3264	803	14	795	24.36	1283.2	39.31	312.5	1562.7	8.7
436	SC	3264	803	5	509	15.59	1283.2	39.31	200.1	1000.5	5.6
438	GA	5733	404	65	3513	61.28	2589.0	45.16	1586.5	7932.3	44.1
440	GA	5733	912	27	642	11.20	2589.0	45.16	289.9	1449.6	8.1
442	GA	5733	404,912	11	352	6.14	2589.0	45.16	159.0	794.8	4.4
442	SC	3264	803	1	110	3.37	1283.2	39.31	43.2	216.2	1.2
444	GA	5733	912	35	620	10.81	2589.0	45.16	280.0	1399.9	7.8
446	GA	5733	912	18	488	8.51	2589.0	45.16	220.4	1101.9	6.1
448	FL	10679	904	4	456	4.27	5175.9	48.47	221.0	1105.1	6.1
450	FL	10679	904	9	259	2.43	5175.9	48.47	125.5	627.7	3.5
452	FL	10679	904	13	975	9.13	5175.9	48.47	472.6	2362.8	13.1
454	FL	10679	904	9	617	5.78	5175.9	48.47	299.0	1495.2	8.3
456	FL	10679	904	2	302	2.83	5175.9	48.47	146.4	731.9	4.1
458	FL	10679	305	4	1101	10.31	5175.9	48.47	533.6	2668.2	14.8
460	FL	10679	305	6	3698	34.63	5175.9	48.47	1792.3	8961.7	49.8
939	FL	10679	813	10	624	5.84	5175.9	48.47	302.4	1512.2	8.4
952	FL	10679	813	6	2447	22.91	5175.9	48.47	1186.0	5930.1	32.9
953	FL	10679	904	4	201	1.88	5175.9	48.47	97.4	487.1	2.7
462	KY	3714	502,606	25	1183	31.85	1382.0	37.21	440.2	2201.0	12.2
462	IN	5479	812	3	180	3.29	2312.0	42.20	76.0	379.8	2.1
464	KY	3714	502	32	678	18.26	1382.0	37.21	252.3	1261.4	7.0
466	KY	3714	606	56	1399	37.67	1382.0	37.21	520.6	2602.9	14.5
468	TN	4685	901	21	1331	28.41	2053.5	43.83	583.4	2917.0	16.2
468	MS	2587	601	1	57	2.20	863.5	33.38	19.0	95.1	0.5
470	TN	4685	615	41	1572	33.55	2053.5	43.83	689.0	3445.1	19.1
472	TN	4685	615	7	435	9.28	2053.5	43.83	190.7	953.3	5.3
472	GA	5732	404	3	107	1.87	2589.0	45.17	48.3	241.6	1.3
474	TN	4685	615	20	963	20.55	2053.5	43.83	422.1	2110.5	11.7
956	TN	4685	615	6	375	8.00	2053.5	43.83	164.4	821.8	4.6
956	VA	5550	703	9	208	3.75	2662.2	47.97	99.8	498.9	2.8
476	AL	3959	205	23	1632	41.22	1529.3	38.63	630.4	3152.1	17.5
477	AL	3959	205	11	790	19.95	1529.3	38.63	305.2	1525.8	8.5
478	AL	3959	205	18	949	23.97	1529.3	38.63	366.6	1832.9	10.2
480	AL	3959	205	7	581	14.68	1529.3	38.63	224.4	1122.2	6.2
482	MS	2587	601	78	2201	85.08	863.5	33.38	734.7	3673.3	20.4
482	LA	4438	318	2	37	0.83	1855.3	41.80	15.5	77.3	0.4
484	MS	2587	601	3	318	12.29	863.5	33.38	106.1	530.7	2.9
486	LA	4438	318	26	1147	25.84	1855.3	41.80	479.5	2397.5	13.3
488	LA	4438	318	14	912	20.55	1855.3	41.80	381.3	1906.3	10.6
490	LA	4438	504	12	740	16.67	1855.3	41.80	309.4	1546.8	8.6
492	LA	4438	504	10	656	14.78	1855.3	41.80	274.2	1371.2	7.6
520	MO	4971	314	44	2600	52.30	2339.8	47.07	1223.8	6119.0	34.0
520	IL	11486	618	11	744	6.48	5820.4	50.67	377.0	1885.1	10.5
521	MO	4970	314	5	194	3.90	2339.8	47.08	91.3	456.7	2.5
522	MO	4970	417	25	684	13.76	2339.8	47.08	322.0	1610.1	8.9
524	MO	4970	816	42	1479	29.76	2339.8	47.08	696.3	3481.5	19.3
524	KS	2425	913	6	569	23.46	1158.8	47.79	271.9	1359.5	7.6
526	AR	2328	501	8	369	15.85	883.3	37.94	140.0	700.0	3.9
528	AR	2328	501	51	1551	66.62	883.3	37.94	588.5	2942.4	16.3
530	AR	2328	501	15	356	15.29	883.3	37.94	135.1	675.4	3.8
532	KS	2425	316	53	1122	46.27	1158.8	47.79	536.2	2680.8	14.9
534	KS	2425	913	45	721	29.73	1158.8	47.79	344.5	1722.7	9.6

LATA #	State	Sta.Pop.	NPA's	Counties	LATA Pop. (1000)	% State	St.Acs.Ln (1000)	% Acc.Den	LATA AL (1000)	OrBH/CCS (1000)	InterLATA (1000)
536	OK	3298	405	51	2011	60.98	1537.4	46.62	937.5	4687.3	26.0
538	OK	3298	918	23	1252	37.96	1537.4	46.62	583.6	2918.2	16.2
540	TX	15724	915	1	510	3.24	7746.9	49.27	251.3	1256.3	7.0
542	TX	15724	915	21	444	2.82	7746.9	49.27	218.7	1093.7	6.1
544	TX	15724	806	19	267	1.70	7746.9	49.27	131.5	657.7	3.7
546	TX	15724	806	24	403	2.56	7746.9	49.27	198.6	992.8	5.5
546	OK	3298	405	3	30	0.91	1537.4	46.62	14.0	69.9	0.4
548	TX	15724	817	15	246	1.56	7746.9	49.27	121.2	606.0	3.4
550	TX	15724	915	10	209	1.33	7746.9	49.27	103.0	514.9	2.9
552	TX	15724	214,817	32	3941	25.06	7746.9	49.27	1941.7	9708.3	53.9
554	TX	15724	214	16	668	4.25	7746.9	49.27	329.1	1645.6	9.1
554	AR	2328	501	1	39	1.68	883.3	37.94	14.8	74.0	0.4
556	TX	15724	817	7	442	2.81	7746.9	49.27	217.8	1088.8	6.0
558	TX	15724	512	7	703	4.47	7746.9	49.27	346.4	1731.8	9.6
560	TX	15724	409,713	23	4001	25.45	7746.9	49.27	1971.2	9856.1	54.8
562	TX	15724	409	8	483	3.07	7746.9	49.27	238.0	1189.8	6.6
564	TX	15724	512	19	679	4.32	7746.9	49.27	334.5	1672.6	9.3
566	TX	15724	512	23	1561	9.93	7746.9	49.27	769.1	3845.4	21.4
568	TX	15724	512	5	610	3.88	7746.9	49.27	300.5	1502.7	8.3
570	TX	15724	409	5	172	1.09	7746.9	49.27	84.7	423.7	2.4
961	TX	15724	915	20	233	1.48	7746.9	49.27	114.8	574.0	3.2
620	MN	4145	218,507	25	681	16.43	2076.7	50.10	341.2	1706.0	9.5
624	MN	4145	218	6	325	7.84	2076.7	50.10	162.8	814.1	4.5
626	MN	4145	612	17	413	9.96	2076.7	50.10	206.9	1034.6	5.7
628	MN	4145	612	17	2319	55.95	2076.7	50.10	1161.8	5809.2	32.3
630	IA	2905	712	16	340	11.70	1335.2	45.96	156.3	781.4	4.3
630	NE	1597	402	1	17	1.06	777.8	48.70	8.3	41.4	0.2
632	IA	2905	515	40	1110	38.21	1335.2	45.96	510.2	2550.9	14.2
634	IA	2905	319	11	521	17.93	1335.2	45.96	239.5	1197.3	6.7
634	IL	11486	309	3	244	2.12	5820.4	50.67	123.6	618.2	3.4
635	IA	2905	319	17	662	22.79	1335.2	45.96	304.3	1521.3	8.5
636	MN	4145	218	21	496	11.97	2076.7	50.10	248.5	1242.5	6.9
636	ND	681	701	22	253	37.15	335.3	49.24	124.6	622.8	3.5
638	ND	681	701	31	329	48.31	335.3	49.24	162.0	809.9	4.5
640	SD	700	605	all	700	100.00	308.0	44.00	308.0	1540.0	8.6
644	NE	1597	402	24	751	47.03	777.8	48.70	365.8	1828.8	10.2
644	IA	2905	712	13	262	9.02	1335.2	45.96	120.4	602.1	3.3
646	NE	1597	308	47	383	23.98	777.8	48.70	186.5	932.7	5.2
958	NE	1597	402	21	443	27.74	777.8	48.70	215.8	1078.8	6.0
648	MT	816	406	29	506	62.01	374.9	45.94	232.5	1162.4	6.5
650	MT	816	406	28	307	37.62	374.9	45.94	141.0	705.2	3.9
652	ID	989	208	34	750	75.83	411.0	41.56	311.7	1538.4	8.7
652	OR	2662	503	1	27	1.01	1235.6	46.42	12.5	62.7	0.3
960	ID	989	208	6	152	15.37	411.0	41.56	63.2	315.8	1.8
960	WA	4300	509	1	9	0.21	2107.9	49.02	4.4	22.1	0.1
654	WY	514	307	all	514	100.00	235.1	45.74	235.1	1175.5	6.5
656	CO	3139	303	38	2463	78.46	1666.2	53.08	1307.4	6536.9	36.3
658	CO	3139	303	25	676	21.54	1666.2	53.08	358.8	1794.1	10.0
660	UT	1619	801	all	1619	100.00	656.7	40.56	656.7	3283.5	18.2
664	NM	1399	505	all	1399	100.00	600.8	42.94	600.8	3004.0	16.7
666	AZ	2963	602	8	2234	75.40	1482.4	50.03	1117.7	5588.4	31.0
668	AZ	2963	602	6	729	24.60	1482.4	50.03	364.7	1823.6	10.1
670	OR	2662	503	11	896	33.66	1235.6	46.42	415.9	2079.4	11.6
672	OR	2662	503	24	1735	65.18	1235.6	46.42	805.3	4026.6	22.4
672	WA	4300	206,509	5	312	7.26	2107.9	49.02	152.9	764.7	4.2
674	WA	4300	206	15	2954	68.70	2107.9	49.02	1448.1	7240.4	40.2
676	WA	4300	509	18	1022	23.77	2107.9	49.02	501.0	2505.0	13.9
676	ID	989	208	4	60	6.07	411.0	41.56	24.9	124.7	0.7
720	NV	891	702	16	370	41.53	473.3	53.12	196.5	982.7	5.5
721	NV	891	702	1	521	58.47	473.3	53.12	276.8	1383.8	7.7
722	CA	25174	408,415,707	14	5877	23.35	13972.1	55.50	3261.9	16309.3	90.6
724	CA	25174	916	9	456	1.81	13972.1	55.50	253.1	1265.4	7.0
726	CA	25174	916	10	1380	5.48	13972.1	55.50	765.9	3829.6	21.3
728	CA	25174	209	4	961	3.82	13972.1	55.50	533.4	2666.9	14.8
730	CA	25174	213,619,714	7	12212	48.51	13972.1	55.50	6777.9	33889.6	188.3
730	CA	25174	805,818			0.00		0.00	0.0	0.0	0.0
732	CA	25174	619	2	2116	8.41	13972.1	55.50	1174.4	5872.1	32.6
734	CA	25174	805	1	447	1.78	13972.1	55.50	248.1	1240.5	6.9
736	CA	25174	408	2	339	1.35	13972.1	55.50	188.2	940.8	5.2
738	CA	25174	209	7	798	3.17	13972.1	55.50	442.9	2214.5	12.3
740	CA	25174	805	2	488	1.94	13972.1	55.50	270.9	1354.3	7.5
973	CA	25174	619 partial	8		0.03	13972.1	55.50	4.4	22.2	0.1

EXHIBIT 5.3 1983 LATA POPULATION, ACCESS LINES AND 1990 ORIGINATING TRAFFIC, Page 1 of 4

LATA #	LATA Pop (000)	LATA AcLi (000)	OrBH CCS (000)	IX Erlg. (000)	Interexchange CLLI	Access V	Points H
All	231181	112579.3	562896.5	3127.203			
120	1146	496.400	2482.00	13.789	PTLDMEPO	3999	1526
122	958	470.100	2350.50	13.058	MNCHNHCO	4385	1343
124	526	245.000	1225.00	6.806	BURLVTMA	4270	1808
126	795	403.648	2018.24	11.212	SPFDMAWO	4620	1408
128	4970	2523.436	12617.18	70.095	BSTNMAFR	4422	1248
130	955	437.100	2185.50	12.142	PRVDMAWA	4550	1219
920	3077	1585.091	7925.46	44.030	HRFRCTO3	4687	1373
132	11006	5837.611	29188.05	162.156	NYCMNY54	4992	1410
133	737	390.968	1954.84	10.860	PGHKNYSH	4822	1525
134	1257	666.821	3334.11	18.523	ALBYNYSS	4639	1629
136	1546	820.132	4100.66	22.781	SYRCNYSU	4797	1990
138	628	333.145	1665.73	9.254	BNGHNYHY	4943	1837
140	1603	850.369	4251.85	23.621	BFLONYFR	5076	2327
974	951	504.492	2522.46	14.014	ROCHNYXA	4913	2195
220	285	163.203	816.02	4.533	ATCYNJAC	5284	1284
222	1570	899.050	4495.25	24.974	TRENNJTN	5156	1440
224	5612	3213.674	16068.37	89.269	NWRKNJO2	5016	1430
226	1472	712.030	3560.15	19.779	HRBGPAAH	5363	1733
228	5122	2508.461	12542.30	69.679	PHLAPAMK	5250	1459
230	986	476.944	2384.72	13.248	ALNAPAAL	5460	1972
232	1487	719.285	3596.43	19.980	SCTNPASC	5042	1715
234	2996	1449.213	7246.06	40.256	PITBPADG	5619	2184
924	435	210.416	1052.08	5.845	ERIEPAXH	5321	2397
236	3270	2127.661	10638.31	59.102	WASHDCSW	5623	1578
238	2307	1229.543	6147.71	34.154	BLTMDCH	5511	1574
240	453	222.927	1114.63	6.192	HGTWMDHG	5555	1772
242	241	128.444	642.22	3.568	SLBRMDSB	5577	1316
244	921	441.781	2208.91	12.272	RONKVALX	6196	1802
246	276	132.390	661.95	3.678	CLPPVACU	5791	1666
248	1033	495.505	2477.52	13.764	RCMDVAGR	5906	1472
250	342	164.049	820.25	4.557	LYBGVACH	6094	1703
252	1304	625.497	3127.49	17.375	NRFLVABS	5917	1223
927	78	37.415	187.07	1.039	HRBGVAXA	5879	1787
928	117	56.122	280.61	1.559	CHVLVAXA	5919	1683
929	28	13.431	67.15	0.373	EDBGVAXA	5783	1789
254	1054	393.601	1968.00	10.933	CHTNWVLE	6152	2174
256	678	253.189	1265.95	7.033	CLBGWVMA	5864	2096
932	123	45.933	229.66	1.276	BLFDWVXA	6315	1990
320	2139	968.581	4842.91	26.905	CLEVOH02	5575	2544
322	636	287.993	1439.97	8.000	YNTWOH02	5557	2354
324	2227	1008.429	5042.15	28.012	CLMBOH11	5972	2554
325	1256	568.741	2843.71	15.798	AKRNOH25	5637	2472
326	1290	584.137	2920.69	16.226	TOLD0H21	5703	2820
328	1187	537.497	2687.48	14.930	DYTNOH15	6112	2704
922	1706	746.977	3734.88	20.749	CNCNOHWS	6263	2680
923	653	295.691	1478.46	8.214	MNFDOHXF	5784	2575
330	369	155.709	778.54	4.325	EVVLINO1	6729	3018
332	793	334.626	1673.13	9.295	SBNDINO5	5919	3206
334	530	223.647	1118.23	6.212	HNTNINO1	6008	3013

LATA #	LATA Pop (000)	LATA AcLi (000)	OrBH CCS (000)	IX Erlg. Interexchange (000)	Access Points CLLI V H
336	2042	861.673	4308.36	23.935	IPLSIN01 6272 2992
338	532	224.491	1122.45	6.236	BLTNIN01 6417 2984
937	178	75.112	375.56	2.086	RCMDINXB 6157 2813
938	157	66.250	331.25	1.840	TRRHINXA 6431 3145
340	5174	2506.272	12531.36	69.619	DTRTMIBH 5536 2829
342	324	156.886	784.43	4.358	MRQTMIMN 5080 3875
344	987	478.100	2390.50	13.281	SGNWMIFA 5404 3074
346	544	263.512	1317.56	7.320	LNNGMIMN 5583 3081
348	2046	991.077	4955.39	27.530	GDRPMIBL 5628 3261
350	1128	529.858	2649.29	14.718	APPLWIO1 5588 3778
352	529	248.489	1242.44	6.902	EUCLWIO1 5697 4262
354	931	437.321	2186.61	12.148	MDSNWI11 5888 3796
356	2158	1013.683	5068.42	28.158	MILWWI48 5788 3588
358	8173	4086.055	20430.27	113.502	CHCGILCL 5987 3426
360	362	183.439	917.20	5.096	RCFRILRT 6021 3675
362	365	184.960	924.80	5.138	CAIRILCF 7042 3168
364	268	135.806	679.03	3.772	STNGILSI 6158 3714
366	225	114.016	570.08	3.167	BLTNILXD 6358 3483
368	506	256.410	1282.05	7.122	PEORILPJ 6362 3592
370	314	159.116	795.58	4.420	CHMPILCP 6371 3336
374	391	198.135	990.67	5.504	SPFDILSD 6540 3513
376	184	93.240	466.20	2.590	QNCYILQY 6642 3791
976	279	141.380	706.90	3.927	MTONILXC 6503 3291
977	171	86.652	433.26	2.407	GLBGILXD 6370 3732
978	167	84.625	423.13	2.351	OLNYILXE 6623 3172
420	467	203.961	1019.81	5.666	AHVLNCOH 6747 2001
422	1873	810.789	4053.95	22.522	CHRLNCCA 6657 1698
424	1160	506.627	2533.14	14.073	GNBONCEU 6402 1639
426	777	339.353	1696.77	9.426	RLGHNCMO 6344 1434
428	361	157.666	788.33	4.380	WLMGNCFO 6657 1145
949	725	316.642	1583.21	8.796	FYVLNCXA 6501 1385
951	868	379.097	1895.49	10.530	RCMTNCXA 6232 1329
430	1020	401.611	2008.05	11.156	GNVLSCDT 6872 1895
432	626	246.104	1230.52	6.836	FLRNSCMA 6745 1417
434	795	312.544	1562.72	8.682	CLMASCTL 6902 1588
436	509	200.107	1000.53	5.559	CHTNSCDT 7022 1279
438	3513	1586.734	7933.67	44.076	ATLNGATL 7259 2084
440	642	289.975	1449.88	8.055	SVNHGABS 7269 1379
442	462	202.235	1011.17	5.618	AGSTGAMT 7090 1675
444	620	280.038	1400.19	7.779	ALBYGAMA 7650 1816
446	488	220.417	1102.09	6.123	MACNGAMT 7364 1866
448	456	220.993	1104.97	6.139	PNSCFLBL 8147 2200
450	259	125.520	627.60	3.487	PNCYFLMA 8058 1914
452	975	472.519	2362.59	13.126	JCVLFLCL 7647 1276
454	617	299.020	1495.10	8.306	GSVLFLAN 7838 1310
456	302	146.360	731.80	4.066	DYBHFLMA 7791 1052
458	1101	533.583	2667.91	14.822	ORLDFLMA 7954 1032
460	3698	1792.180	8960.90	49.783	OJUSFLTL 8320 538
939	624	302.412	1512.06	8.400	FTMYFLXA 8359 904
952	2447	1185.901	5929.51	32.942	TAMPFLXA 8172 1147

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LATA #	LATA Pop (000)	LATA AcLi (000)	OrBH CCS (000)	IX Erlg. (000)	Interexchange CLLI	Access V	Points H
953	201	97.412	487.06	2.706	TLHSFLXA	7877	1716
462	588	227.775	1138.87	6.327	LSVLKYCS	6529	2773
464	678	252.288	1261.44	7.008	OWBOKYMA	6731	2927
466	1399	520.576	2602.88	14.460	LXTNKYXA	6472	2555
468	1388	602.421	3012.11	16.734	MMPHTNMA	7471	3127
470	1572	689.029	3445.15	19.140	NSVLTNMT	7009	2711
472	542	238.996	1194.98	6.639	CHTGTNMA	7098	2366
474	963	422.096	2110.48	11.725	KNVLTNMA	6801	2251
956	583	264.140	1320.70	7.337	BRSTTNXA	6529	2056
476	1632	630.416	3152.08	17.512	BRHMALMT	7518	2446
477	790	305.165	1525.82	8.477	HNVLALNT	7267	2534
478	949	366.584	1832.92	10.183	MTGMALTT	7492	2247
480	581	224.431	1122.16	6.234	MOBLALMT	8167	2367
482	2238	750.127	3750.64	20.837	JCSNMSPS	8035	2880
484	318	106.143	530.72	2.948	GLPTMSTS	8318	2511
486	1147	479.502	2397.51	13.319	SHPTLATL	8271	3493
488	912	381.260	1906.30	10.591	LFYTLAMA	8587	2997
490	740	309.356	1546.78	8.593	NWORLAMA	8482	2638
492	656	274.240	1371.20	7.618	BTRGLAMA	8476	2874
520	3344	1601.054	8005.27	44.474	STLSMO09	6807	3483
521	194	91.332	456.66	2.537	JFCYMOXA	6963	3782
522	684	322.017	1610.08	8.945	SPFDMOTL	7311	3833
524	2048	968.190	4840.95	26.894	KSCYMO09	7029	4202
526	369	140.008	700.04	3.889	FTSMARSU	7752	3855
528	1551	588.487	2942.44	16.347	LTRKARFR	7721	3448
530	356	135.075	675.38	3.752	PNBLARJE	7803	3358
532	1122	536.154	2680.77	14.893	WCHTKSBR	7489	4520
534	721	344.534	1722.67	9.570	TPKAKSJA	7110	4369
536	2011	937.450	4687.25	26.040	OKCYOKCE	7946	4372
538	1252	583.634	2918.17	16.212	TULSOKTS	7708	4176
540	510	251.267	1256.33	6.980	ELPSTXMA	9231	5655
542	444	218.750	1093.75	6.076	MDLDTXMU	8934	4890
544	267	131.546	657.73	3.654	LBCKTXPS	8598	4962
546	433	212.535	1062.67	5.904	AMRLTXDR	8266	5075
548	246	121.199	606.00	3.367	WCFLTXXNI	8322	4406
550	209	102.970	514.85	2.860	ABLNTXDR	8698	4513
552	3941	1941.652	9708.26	53.935	DLLSTXTL	8432	4033
554	746	363.122	1815.61	10.087	LGWVXTL	8347	3661
556	442	217.765	1088.82	6.049	WACOTX01	8702	3966
558	703	346.354	1731.77	9.621	AUSTTXGR	9004	3997
560	4001	1971.213	9856.06	54.756	HSTNTX01	8946	3550
562	483	237.964	1189.82	6.610	BUMTTXTE	8777	3344
564	679	334.530	1672.65	9.292	CRCHTXTU	9481	3754
566	1561	769.073	3845.37	21.363	SNANTXCA	9225	4063
568	610	300.535	1502.67	8.348	HLRNTXAT	9815	3668
570	172	84.741	423.70	2.354	BRYNTXXA	8827	3788
961	233	114.794	573.97	3.189	SANGTXXA	8944	4563
620	681	341.272	1706.36	9.480	ROCHMNRO	5916	4326
624	325	162.869	814.34	4.524	DLTHMNME	5352	4529
626	413	206.968	1034.84	5.749	STCDMNTO	5721	4703

LATA #	LATA Pop (000)	LATA AcLi (000)	OrBH CCS (000)	IX Erlg. (000)	Interexchange CLLI	Access V	Points H
628	2319	1162.130	5810.65	32.281	MPLSMNDT	5780	4526
630	357	164.551	822.75	4.571	SXCYIADT	6468	4767
632	1110	510.180	2550.90	14.172	DESMIADT	6472	4275
634	765	363.107	1815.53	10.086	DVNPIADT	6273	3818
635	662	304.269	1521.35	8.452	CDRRIADT	6262	4021
636	749	373.314	1866.57	10.370	FARGNDBC	5614	5181
638	329	162.226	811.13	4.506	BSMRNDBC	5843	5735
640	700	308.000	1540.00	8.556	SXFLSDCO	6278	4901
644	1013	486.186	2430.93	13.505	OMAHNENW	6687	4595
646	383	186.536	932.68	5.182	GDISNENW	6901	4936
958	443	215.758	1078.79	5.993	LNCLNEXL	6823	4674
648	506	232.190	1160.95	6.450	HLNAMTMA	6339	7350
650	307	140.874	704.37	3.913	BLNGMTMA	6390	6790
652	777	324.211	1621.05	9.006	BOISIDMA	7094	7866
960	161	67.579	337.89	1.877	CRALIDXX	6228	8085
654	514	235.100	1175.50	6.531	CSPRWYMA	6916	6297
656	2463	1307.375	6536.88	36.316	DNVRCOMA	7501	5899
658	676	358.825	1794.12	9.967	CLSPCOMA	7680	5813
660	1619	656.700	3283.50	18.242	SLKCUTMA	7574	7066
664	1399	600.800	3004.00	16.689	ALBGNMMA	8549	5887
666	2234	1117.679	5588.39	31.047	PHNXAZMA	9133	6748
668	729	364.721	1823.61	10.131	TCSNAZMA	9346	6487
670	896	415.889	2079.45	11.552	EUGNOR53	7128	8955
672	2047	958.267	4791.33	26.619	PLTDOR62	6799	8915
674	2954	1448.078	7240.39	40.224	STTLWA06	6337	8896
676	1082	525.928	2629.64	14.609	SPKNWA01	6247	8177
720	370	196.544	982.72	5.460	RENDNV02	8064	8323
721	521	276.756	1383.78	7.688	LSVGNV02	8665	7411
722	5877	3261.859	16309.29	90.607	SNFCCA01	8492	8719
724	456	253.090	1265.45	7.030	CHICCA01	8059	8668
726	1380	765.929	3829.65	21.276	SCRMCA01	8303	8581
728	961	533.375	2666.88	14.816	FRSNCA01	8669	8239
730	12220	6782.357	33911.79	188.399	LSANCA02	9213	7878
732	2116	1174.425	5872.12	32.623	SNDGCA01	9468	7630
734	447	248.094	1240.47	6.892	BKFDCA01	8947	8059
736	339	188.152	940.76	5.226	SLNSCA01	8723	8561
738	798	442.907	2214.53	12.303	SKTNCA01	8435	8531
740	488	270.850	1354.25	7.524	SNLDCA01	9005	8348
973	8	4.440	22.20	0.123	PLSPCAXG	9211	7561

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EXHIBIT 5-4 LATA-TO-LATA DISTANCES, Part 1
LATA-TO-LATA Distances (miles)

224	226	228	230	232	234	924	236	240	242	244	246	248	250	252
323.0	436.3	396.2	463.1	335.2	552.9	500.6	513.8	498.2	503.4	700.2	566.4	603.3	664.9	614.0
120	333.0	276.0	393.9	238.8	445.8	377.0	398.5	394.1	377.0	590.8	456.2	482.7	552.3	485.9
122	346.4	329.0	379.9	245.9	442.9	381.0	434.0	406.5	441.6	609.1	483.1	528.1	572.7	552.7
124	264.5	199.9	320.0	165.0	400.0	383.3	321.7	317.3	304.0	513.7	379.2	407.2	475.4	414.3
126	125.4	125.4	125.4	125.4	125.4	125.4	125.4	125.4	125.4	125.4	125.4	125.4	125.4	125.4
128	196.5	334.8	270.2	420.2	445.5	461.3	393.9	394.7	365.9	587.7	452.6	474.6	546.0	472.8
130	161.8	304.2	234.0	373.5	220.9	445.4	357.8	362.7	326.2	552.2	417.1	436.2	511.7	432.3
920	105.6	242.2	180.1	309.2	155.9	390.7	303.0	302.1	282.0	496.1	361.2	386.8	457.0	391.8
132	9.9	155.6	63.0	231.3	97.7	329.0	206.5	211.7	187.4	400.4	265.3	289.7	360.6	298.4
133	68.3	163.3	136.9	246.3	131.9	317.7	253.9	244.6	247.7	443.2	309.7	343.2	406.2	359.2
134	134.8	231.3	200.6	281.4	130.3	324.8	218.4	293.2	312.7	495.4	369.7	403.7	460.7	424.0
136	190.1	196.6	220.7	261.4	116.5	209.8	261.3	249.4	326.0	446.4	370.6	387.1	420.1	429.3
138	130.8	136.8	154.0	163.0	193.7	213.7	230.1	194.6	258.5	396.4	330.6	325.7	364.1	364.1
140	264.3	208.6	279.9	165.4	193.8	400.5	293.3	231.6	356.8	391.2	307.9	376.8	438.9	438.9
974	244.1	203.9	256.0	186.8	157.2	144.0	297.5	272.6	342.3	424.3	324.1	388.4	404.6	441.9
220	96.5	144.2	56.4	224.6	156.3	352.2	141.9	176.5	93.2	331.7	200.7	205.5	288.4	201.1
222	44.4	113.4	30.3	193.8	94.1	307.1	154.0	164.1	138.8	348.2	213.1	237.4	308.1	250.2
224	0.0	145.7	74.6	221.6	90.5	320.6	163.0	201.9	181.0	391.3	256.2	281.8	351.7	292.3
226	145.7	0.0	93.7	81.6	101.7	210.4	95.7	62.0	148.2	264.3	137.0	190.5	231.4	238.1
228	74.6	93.7	0.0	175.3	104.3	297.5	123.8	138.2	112.9	318.2	142.5	211.9	277.5	223.7
230	221.6	81.6	175.3	155.2	0.0	235.1	188.8	163.2	211.1	366.0	237.4	283.8	332.7	317.4
232	90.5	101.7	104.3	155.2	0.0	235.1	188.8	163.2	211.1	366.0	237.4	283.8	332.7	317.4
234	305.3	164.0	257.3	83.8	235.1	115.8	191.6	211.0	351.3	334.6	274.8	346.1	416.4	416.4
924	320.6	210.4	237.5	141.4	0.0	0.0	276.0	65.0	84.1	194.6	60.0	95.6	154.1	145.8
236	197.6	95.7	123.8	134.8	191.6	276.0	0.0	64.1	84.2	226.3	93.2	129.0	188.8	169.7
238	163.0	68.7	90.2	126.9	154.9	267.1	35.4	0.0	0.0	202.9	93.2	146.0	171.8	208.0
240	201.9	62.0	138.2	163.2	131.8	211.0	65.0	64.1	144.4	248.9	129.7	115.1	204.2	111.5
242	181.0	148.2	112.9	210.7	211.1	274.8	84.1	144.4	0.0	248.9	135.1	71.3	96.5	145.6
244	391.3	264.3	318.2	338.9	366.0	218.6	194.6	202.9	248.9	0.0	0.0	0.0	0.0	0.0
246	256.2	137.0	183.2	142.5	237.4	172.6	60.0	81.8	129.7	135.1	71.3	0.0	94.2	161.8
248	281.8	190.5	207.5	211.9	283.8	242.8	95.6	129.0	115.1	138.9	96.5	0.0	0.0	0.0
250	351.7	231.4	277.8	217.5	317.4	213.8	154.1	171.8	204.2	44.9	145.6	78.8	161.8	0.0
252	292.3	238.1	223.7	277.5	317.4	213.8	154.1	171.8	204.2	44.9	145.6	78.8	161.8	0.0
927	295.3	164.1	224.3	144.8	265.7	150.1	99.3	118.5	158.6	100.4	47.3	100.0	178.8	178.8
928	296.5	176.5	223.1	171.5	277.5	184.7	99.3	118.5	158.6	100.4	47.3	100.0	178.8	178.8
929	267.8	134.0	188.2	117.4	235.5	135.2	83.7	109.6	163.1	130.7	39.0	107.5	150.1	309.8
254	429.4	285.8	364.0	228.0	379.8	166.6	272.1	227.6	326.6	118.5	197.1	197.8	276.6	276.6
256	341.0	195.6	279.8	133.6	286.5	82.3	199.3	141.6	262.8	140.2	137.9	197.8	276.6	276.6
932	447.3	311.8	376.3	270.4	411.8	228.5	254.7	250.0	316.1	70.4	194.8	208.7	273.3	273.3
932	394.1	265.1	358.2	184.5	311.7	114.7	305.9	244.2	388.3	306.0	285.9	354.8	431.5	431.5
322	338.6	205.7	299.2	124.6	259.5	57.2	246.3	184.0	328.3	267.0	229.8	300.0	266.9	375.3
324	466.6	323.3	414.8	245.1	396.1	91.3	342.5	220.3	366.1	248.1	286.6	342.8	271.9	421.3
325	363.6	249.2	342.9	279.0	407.2	202.9	393.6	334.7	470.4	286.5	343.6	395.0	374.2	472.4
326	490.3	360.2	453.6	293.0	460.8	226.6	393.6	343.3	470.4	286.5	343.6	395.0	374.2	472.4
328	531.4	387.8	478.9	310.0	492.1	257.1	403.0	364.1	482.8	278.5	353.7	398.3	313.5	473.6
932	558.3	413.1	501.7	338.5	492.1	311.0	422.9	364.1	482.8	278.5	353.7	398.3	313.5	473.6
923	436.0	297.7	391.2	216.5	359.2	134.2	328.1	264.1	403.5	219.9	520.4	553.8	461.8	429.6
330	738.7	593.1	679.6	520.0	674.1	439.1	574.2	541.4	649.9	452.5	488.7	548.4	478.5	627.1
332	630.7	497.9	591.6	416.3	547.0	336.8	518.1	461.9	607.4	452.5	488.7	548.4	478.5	627.1
334	590.8	453.3	546.8	372.0	511.7	289.5	461.4	417.8	553.7	377.1	446.1	494.4	411.5	570.6
336	633.8	491.1	582.6	412.3	560.7	328.5	492.0	447.5	573.8	377.1	446.1	494.4	411.5	570.6
937	661.6	517.3	607.2	440.5	591.7	357.3	510.6	470.3	590.6	380.3	461.4	504.7	417.8	578.9
937	567.0	423.9	515.4	345.4	630.4	261.7	425.5	380.3	507.7	319.9	380.7	431.4	351.6	508.5
340	472.0	350.9	442.6	272.1	385.4	205.6	396.6	334.3	478.6	386.0	376.5	444.8	397.4	522.0
342	773.4	683.2	785.9	613.7	683.2	561.2	746.4	681.8	824.3	744.5	733.8	803.5	485.4	607.4
344	534.2	424.3	513.0	348.9	444.7	289.5	475.1	414.5	558.6	473.8	461.8	530.9	465.4	607.4
346	552.0	431.9	523.6	352.8	464.6	261.2	478.1	414.5	558.6	473.8	461.8	530.9	465.4	607.4
348	610.5	490.4	582.2	411.1	522.8	340.6	475.9	414.5	558.6	473.8	461.8	530.9	465.4	607.4
350	761.2	650.6	741.1	572.5	674.8	504.2	695.8	634.4	778.6	653.8	671.0	736.1	675.4	814.6
352	921.1	806.7	897.6	728.0	831.6	601.6	849.1	788.7	932.4	793.8	821.5	884.7	793.8	918.9
354	797.4	673.2	766.1	593.5	710.4	516.8	712.7	648.6	790.4	638.0	674.3	734.7	665.1	813.7
356	724.8	601.6	694.4	521.4	637.5	447.2	637.8	579.0	721.6	579.3	607.8	670.2	603.9	749.0
358	701.9	570.6	664.2	489.1	604.6	387.6	595.6	540.6	679.7	517.8	560.0	618.4	545.9	697.0
360	777.8	648.4	742.0	567.0	682.8	488.3	675.0	619.6	759.1	594.9	639.5	697.6	624.0	776.1
362	844.1	698.4	783.1	627.1	781.7	547.1	673.9	645.0	746.7	508.1	618.1	645.5	551.8	710.5
364	807.5	675.0	768.7	593.4	724.0	513.0	696.3	643.0	780.3	604.7	658.0	713.4	636.3	791.4

EXHIBIT 5.4 LATR-TO-LATA DISTANCES, Part 1

To LATA *	927	928	929	254	256	LATA-to-LATA	932	320	322	324	326	328	922	923	330	332
120	600.2	609.2	570.2	711.0	616.7	746.9	593.3	557.9	703.5	703.5	676.6	765.0	603.6	654.7	983.0	806.8
122	492.9	496.9	464.0	617.5	524.8	643.2	534.6	489.5	631.3	631.3	626.0	695.3	729.0	589.5	911.0	763.1
124	508.9	523.0	478.5	606.3	512.2	649.2	473.6	442.1	587.6	587.6	554.8	647.7	687.9	536.7	866.6	683.6
126	415.8	419.3	387.0	541.6	449.5	566.7	469.3	421.1	560.5	560.5	562.7	651.3	657.1	536.7	839.0	701.4
128	491.3	493.0	463.1	620.5	529.0	643.0	548.5	501.1	640.9	640.9	641.3	705.4	712.0	601.3	919.5	779.4
130	457.0	457.1	429.6	589.8	499.6	609.1	529.7	479.8	616.8	616.8	623.9	681.5	712.0	579.8	893.6	763.0
132	399.0	401.7	370.7	528.0	436.8	550.6	464.7	414.6	551.9	551.9	559.1	616.6	647.5	514.6	829.2	698.4
133	304.8	305.6	277.4	439.2	350.9	456.8	403.2	350.4	476.4	476.4	499.4	552.6	588.2	450.3	748.5	634.8
134	344.4	345.4	315.2	468.0	375.7	494.5	400.7	350.4	488.0	488.0	495.3	552.6	588.2	450.3	748.5	634.8
136	395.3	405.1	365.3	508.5	414.6	542.2	413.9	369.9	513.1	513.1	505.0	576.7	611.7	469.7	793.6	642.3
138	348.1	367.8	318.2	432.4	339.1	480.0	302.0	266.5	412.2	412.2	388.6	473.2	512.4	362.8	692.1	523.2
140	290.4	312.5	266.1	396.9	302.5	436.6	299.9	253.8	396.6	396.6	297.5	392.9	459.3	353.8	677.1	495.3
142	308.0	335.5	280.9	343.7	343.7	406.0	343.7	292.3	392.3	392.3	252.2	348.6	391.6	237.2	566.6	385.1
144	331.6	357.0	303.6	391.9	302.4	448.1	236.7	209.8	353.6	353.6	318.5	411.9	453.6	300.5	630.5	451.0
146	246.4	237.2	224.5	393.1	315.6	395.1	408.9	349.2	456.8	456.8	391.9	503.5	539.2	300.5	630.5	451.0
148	253.6	253.2	226.9	391.3	305.2	405.7	373.4	315.6	466.6	466.6	360.1	469.4	501.2	338.5	704.6	608.4
150	295.3	296.5	267.8	429.4	341.0	447.3	394.1	338.6	466.6	466.6	360.1	469.4	501.2	338.5	704.6	608.4
152	164.1	176.5	134.0	285.8	195.6	311.8	265.1	205.7	323.3	323.3	249.2	362.8	413.1	297.7	593.1	497.9
154	224.3	223.1	198.2	364.0	279.8	376.3	358.2	299.2	414.8	414.8	342.9	478.9	501.7	391.2	679.6	591.6
156	144.8	171.5	117.4	228.0	133.6	270.4	184.5	124.6	245.1	245.1	167.7	279.0	338.5	216.5	520.0	416.3
158	265.7	277.5	235.5	379.8	286.5	411.8	311.7	259.5	396.1	396.1	304.5	407.2	492.1	359.2	674.1	547.0
160	150.1	184.7	135.2	168.6	82.3	238.5	114.7	57.2	161.7	161.7	102.7	266.3	311.0	156.9	486.6	336.8
162	261.4	294.5	241.5	272.1	196.3	339.7	326.8	246.3	421.3	421.3	309.5	473.6	429.6	251.0	627.1	448.9
164	104.5	99.3	83.7	252.0	180.7	254.7	305.9	246.3	342.8	342.8	282.7	393.6	403.0	319.4	574.2	523.3
166	236	134.5	109.6	277.6	199.3	286.3	307.4	247.1	327.5	327.5	286.8	404.7	422.9	328.1	597.4	532.0
168	240	102.6	72.3	227.6	141.6	250.0	244.2	184.0	280.3	280.3	222.9	334.7	364.1	264.1	541.4	467.9
170	176.9	158.6	163.1	326.6	262.8	316.1	388.3	328.3	410.9	410.9	366.1	470.4	482.8	403.5	649.9	607.4
172	100.4	95.3	130.7	118.5	140.2	70.4	306.0	267.0	248.1	248.1	275.9	357.7	353.7	277.0	419.9	452.5
174	246	47.3	39.0	197.1	137.9	194.8	285.9	229.8	286.6	286.6	259.5	343.6	353.7	287.5	520.4	488.7
176	100.0	66.9	107.5	235.2	197.8	208.7	354.8	300.0	342.8	342.8	327.5	431.1	398.3	350.9	553.8	548.4
178	73.0	55.7	102.0	150.1	144.0	114.5	312.5	266.9	271.9	271.9	282.9	374.2	313.5	292.7	461.8	478.5
180	145.5	183.9	183.9	309.8	276.6	273.3	431.5	375.3	421.3	421.3	509.5	473.6	429.6	251.0	627.1	448.9
182	0.0	35.2	30.4	149.8	97.8	152.1	258.0	206.2	244.3	244.3	331.4	299.2	307.4	285.3	493.8	481.6
184	35.2	0.0	54.5	171.9	131.8	158.5	293.2	241.1	275.9	275.9	366.0	328.6	333.5	285.3	493.8	481.6
186	30.4	54.5	0.0	168.6	100.4	179.8	247.6	192.4	249.2	249.2	327.0	307.5	320.0	248.6	490.4	450.2
188	149.8	171.9	168.6	216.8	168.6	292.3	0.0	60.4	125.6	125.6	96.2	177.2	221.8	66.8	394.5	404.4
190	97.8	131.8	100.4	94.4	0.0	146.5	60.4	0.0	145.7	145.7	154.4	207.5	245.9	100.2	292.7	292.7
192	151.1	158.5	179.8	77.7	146.5	0.0	146.5	0.0	109.1	109.1	119.6	64.9	100.3	59.8	280.6	206.9
194	288.0	293.2	247.6	216.8	168.6	292.3	0.0	60.4	125.6	125.6	96.2	177.2	221.8	66.8	394.5	404.4
196	206.2	241.1	192.4	196.6	126.8	265.9	60.4	0.0	145.7	145.7	154.4	207.5	245.9	100.2	292.7	292.7
198	244.3	275.9	249.2	133.0	148.8	208.7	125.6	0.0	145.7	145.7	154.4	207.5	245.9	100.2	292.7	292.7
200	229.7	265.0	220.9	188.2	138.9	263.1	30.0	0.0	109.1	109.1	119.6	64.9	100.3	59.8	280.6	206.9
202	331.4	366.0	327.0	248.8	234.5	236.1	96.2	154.4	119.6	119.6	112.0	167.2	208.6	56.8	386.1	248.7
204	299.2	328.6	307.5	168.1	207.6	234.7	177.2	207.5	64.9	64.9	134.4	0.0	48.3	81.6	330.4	139.9
206	307.4	333.5	320.0	163.8	223.7	218.8	221.8	245.9	100.3	100.3	182.5	0.0	155.1	155.1	182.0	198.7
208	473.1	493.8	490.4	323.3	399.8	350.5	394.5	426.0	280.8	280.8	386.1	216.9	182.0	330.0	330.0	204.1
210	448.9	481.6	450.2	334.6	351.4	404.4	235.9	294.7	206.9	206.9	330.4	216.9	182.0	330.0	330.0	204.1
212	389.8	421.5	393.5	289.2	293.5	337.8	201.9	252.5	145.6	145.6	170.1	198.7	155.6	204.1	263.0	0.0
214	400.8	428.7	410.6	261.4	311.3	317.2	262.0	303.0	167.9	167.9	103.1	103.1	132.6	155.6	228.0	67.2
216	415.0	440.5	427.8	269.5	330.8	316.0	300.4	337.1	195.7	195.7	188.0	104.2	98.7	203.0	144.7	130.5
218	336.1	365.2	344.7	202.1	244.9	265.0	202.8	238.9	100.7	100.7	231.7	130.9	107.8	238.3	99.2	172.4
220	463.6	489.9	475.3	319.5	377.1	367.1	330.7	372.8	236.6	236.6	143.6	37.3	156.3	139.9	192.1	145.3
222	346.9	382.1	338.0	284.3	253.9	362.0	91.0	150.4	163.0	163.0	52.9	186.4	234.7	112.3	382.0	169.9
224	707.0	742.2	696.1	635.8	614.8	712.6	449.1	504.1	504.1	504.1	387.4	493.6	531.7	467.5	587.7	339.3
226	433.8	463.1	423.7	370.1	341.8	447.5	176.1	232.8	243.5	243.5	124.1	252.6	298.9	198.3	419.4	168.1
228	472.8	507.4	468.1	381.6	375.9	456.9	237.4	287.7	248.6	248.6	90.8	205.4	249.6	172.2	362.9	113.4
230	636.3	677.7	632.0	537.7	539.0	610.4	390.2	450.4	405.7	405.7	141.5	305.1	407.6	222.5	356.5	93.7
232	784.8	813.6	782.5	675.8	687.0	744.6	544.6	605.0	514.7	514.7	456.0	509.9	531.3	385.4	511.1	341.2
234	570.3	603.8	568.9	519.7	537.6	586.9	408.1	467.9	393.7	393.7	314.1	352.5	372.3	367.5	362.3	186.8
236	519.4	551.6	521.7	399.3	422.4	465.8	336.9	397.0	332.1	332.1	244.3	297.7	324.1	320.3	347.9	127.7
238	598.7	630.8	601.1	476.5	501.8	540.9	384.5	442.8	354.8	354.8	211.6	231.7	251.5	276.7	347.8	72.8
240	570.9	588.8	590.5	421.9	503.7	437.7	504.1	536.5	390.1	390.1	437.5	328.7	320.7	355.8	305.4	151.8
242	615.7	646.7	620.2	487.0	520.0	547.4	413.4	470.2	371.5	371.5	317.2	319.7	328.7	379.1	284.7	177.5

EXHIBIT 5-4 LATA-TO-LATA DISTANCES, Part 1
LATA-TO-LATA Distances(miles)

To LATA #	334	336	338	337	938	340	342	344	346	348	350	352	354	356	358	360
120	790.4	855.3	892.9	794.6	923.9	637.2	817.7	661.1	701.9	752.6	871.6	1018.0	933.9	863.3	869.6	933.1
122	736.4	792.5	825.9	728.1	862.2	594.4	830.3	635.2	667.5	722.8	858.9	1012.0	909.7	837.2	831.0	900.8
124	658.8	735.5	774.1	676.1	803.6	514.3	702.0	537.5	578.3	628.9	749.5	897.7	810.6	739.8	746.1	809.4
126	671.0	723.8	755.8	658.5	793.5	534.6	793.6	582.3	610.4	667.1	809.6	964.6	855.0	782.1	770.8	842.7
128	750.4	836.3	758.9	738.9	873.8	611.6	856.4	655.6	686.1	742.1	880.9	1034.9	929.6	856.8	846.1	919.1
130	731.0	781.6	812.5	715.8	851.3	597.0	856.5	645.8	673.4	730.2	873.3	1028.4	918.2	845.3	832.8	905.3
132	680.2	746.5	747.5	650.7	786.2	533.0	800.9	583.7	609.9	667.1	812.1	967.8	855.2	782.2	768.4	841.4
134	615.6	652.3	683.6	586.6	722.0	470.1	747.6	523.3	547.7	605.3	752.5	908.7	793.3	720.4	705.1	778.5
136	501.3	553.9	601.0	502.7	632.8	353.6	602.8	392.9	425.2	480.2	618.3	772.8	667.2	594.6	589.8	658.6
138	501.7	556.8	590.6	492.6	626.5	365.5	645.9	417.5	442.4	493.7	646.8	803.1	687.8	614.8	601.2	673.8
140	366.0	432.7	472.2	374.8	500.5	215.3	489.5	258.0	287.3	343.1	486.6	642.6	530.8	457.9	451.4	520.6
142	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
144	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
146	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
148	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
150	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
152	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
154	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
156	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
158	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
160	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
162	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
164	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
166	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
168	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
170	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
172	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
174	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
176	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
178	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
180	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
182	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
184	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
186	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
188	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
190	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
192	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
194	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
196	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
198	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
200	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
202	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
204	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
206	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
208	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
210	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
212	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
214	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
216	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
218	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
220	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
222	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
224	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
226	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
228	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
230	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
232	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
234	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
236	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
238	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
240	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
242	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
244	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
246	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
248	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
250	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
252	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
254	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
256	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4	351.3	405.9	544.2	699.1	592.8	520.2	516.6	584.6
258	432.2	498.2	537.1	439.3	566.3	281.1	533.9	318.4								

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 1

To LATA *	362	364	366	368	370	374	376	377	378	420	422	424	426	428	949
120	1093.4	972.0	969.3	992.6	943.5	1020.0	1100.7	966.8	979.5	881.9	842.3	760.7	742.1	849.1	792.5
122	1019.3	936.2	920.5	946.9	889.7	967.1	1052.9	910.7	914.0	727.2	727.2	620.7	620.7	721.2	663.3
124	976.4	848.4	846.5	869.4	821.5	897.8	977.7	847.7	860.1	755.4	755.6	676.3	666.4	783.4	718.1
126	946.8	876.5	855.9	883.4	823.6	901.0	988.3	842.1	844.0	698.3	650.7	568.2	545.2	649.5	594.9
128	1027.2	953.7	935.1	962.2	903.2	980.6	1067.5	922.2	924.5	721.0	683.2	638.2	610.6	707.5	658.9
130	1000.4	930.7	916.2	944.2	883.0	960.3	1048.4	900.4	900.6	737.5	683.3	600.5	571.4	666.7	619.2
132	854.0	874.3	851.1	879.2	817.9	895.2	983.3	835.3	835.7	681.0	631.4	548.8	524.3	627.1	573.6
133	873.4	811.0	787.0	815.1	753.6	830.9	919.1	771.0	779.3	585.6	534.3	451.7	427.6	533.1	477.3
134	902.4	815.8	799.5	826.0	769.0	846.4	932.0	789.7	794.8	676.9	638.5	557.5	542.7	656.2	593.9
136	801.7	694.6	683.1	708.2	654.9	732.0	815.3	678.5	687.2	513.5	468.4	390.9	375.7	542.2	482.2
138	786.0	707.1	686.4	713.7	654.7	732.1	818.8	674.4	678.6	465.6	412.0	342.0	324.0	519.8	461.0
140	676.2	555.3	545.9	570.4	519.1	595.8	677.9	544.6	552.8	372.6	338.5	270.9	245.4	449.5	396.3
142	740.2	621.1	612.1	636.5	585.5	662.1	744.1	610.7	622.8	502.6	453.5	370.9	338.5	436.4	386.2
144	814.9	716.6	703.9	730.5	673.4	759.1	841.6	701.9	731.9	546.7	491.7	401.7	375.7	541.6	473.0
146	808.9	765.8	749.6	780.1	712.1	786.2	879.5	723.9	749.1	535.2	483.5	399.0	375.7	464.4	416.6
148	844.1	807.5	775.6	805.4	739.5	816.2	906.5	753.3	771.8	535.2	483.5	399.0	375.7	464.4	416.6
150	698.4	675.0	667.4	697.4	638.8	724.8	815.3	678.5	699.9	546.7	491.7	401.7	375.7	464.4	416.6
152	763.1	729.7	729.7	760.7	691.4	767.0	858.8	701.9	694.2	445.8	409.3	329.9	324.3	449.5	376.3
154	637.1	593.4	555.8	586.3	518.7	595.1	686.0	531.8	528.4	407.1	368.3	316.0	327.2	460.1	377.9
156	781.7	724.0	697.0	725.6	662.9	740.1	828.8	679.6	679.9	546.7	491.7	401.7	375.7	464.4	416.6
158	547.1	513.0	472.6	503.4	435.0	511.3	602.4	448.0	445.4	361.4	324.0	247.1	232.1	354.5	284.3
160	596.3	493.5	474.8	501.2	445.4	522.6	607.3	468.7	479.1	468.0	426.8	301.7	329.9	384.4	318.7
162	673.9	656.3	645.7	678.4	604.2	677.1	770.4	609.0	595.0	379.8	329.2	247.1	232.1	354.5	284.3
164	698.9	707.0	660.4	692.6	620.0	694.2	787.0	627.1	615.6	379.8	329.2	247.1	232.1	354.5	284.3
166	645.0	643.0	597.7	629.6	557.8	632.6	725.1	566.2	556.6	413.5	364.5	271.1	271.4	400.9	323.2
168	746.7	746.7	728.4	761.3	686.4	758.6	852.0	689.8	673.7	428.7	362.3	280.2	245.4	345.8	293.0
170	508.1	604.7	534.0	568.5	488.2	551.9	644.6	480.8	453.8	185.3	149.4	83.1	125.4	253.8	163.4
172	618.1	604.7	534.0	568.5	488.2	551.9	644.6	480.8	453.8	185.3	149.4	83.1	125.4	253.8	163.4
174	645.5	713.4	651.8	685.7	607.5	675.8	769.4	605.0	583.4	314.2	248.0	165.5	139.0	259.0	190.2
176	551.8	636.3	569.0	603.3	523.8	589.5	682.6	518.6	493.7	227.0	178.0	99.5	116.1	250.7	163.3
178	710.5	728.2	728.2	762.2	683.4	750.5	843.6	679.7	655.5	359.7	278.1	202.1	150.6	235.3	191.7
180	570.9	615.7	557.3	590.9	514.0	584.5	678.1	514.9	497.2	282.7	247.6	171.9	184.6	319.0	234.2
182	588.8	646.7	585.9	619.7	541.9	611.1	704.7	541.0	520.8	280.5	233.4	153.4	155.8	288.8	206.8
184	590.5	620.2	565.7	598.8	523.4	595.4	688.9	526.7	511.7	312.1	277.9	201.4	209.9	343.3	260.5
186	421.9	487.0	419.0	453.3	373.9	440.8	534.3	370.3	349.0	195.9	219.5	186.7	241.8	362.5	272.8
188	503.7	520.0	465.6	498.6	423.6	496.5	589.6	428.5	416.4	280.8	280.6	223.2	258.6	391.6	301.9
190	437.7	547.4	472.3	506.8	426.0	486.8	578.8	415.7	386.3	136.7	142.2	114.4	176.1	288.3	200.2
192	504.1	413.4	386.6	414.4	355.1	432.5	519.0	376.7	386.4	408.5	434.3	387.7	427.0	559.3	469.1
194	390.1	371.5	318.1	350.6	277.6	352.5	444.9	421.1	424.9	392.5	405.0	350.0	382.9	516.9	427.8
196	495.8	425.9	392.7	421.9	358.5	435.8	524.4	376.9	382.4	301.1	346.7	319.7	373.2	495.4	405.8
198	328.7	319.7	258.3	291.7	216.0	289.4	382.4	223.0	219.1	299.6	465.7	434.0	482.9	609.6	519.2
200	499.7	328.7	255.7	290.1	210.2	277.6	371.2	207.6	182.2	327.9	386.4	349.0	408.3	522.3	434.9
202	439.8	379.1	339.7	369.9	303.9	381.0	470.6	320.9	325.6	354.5	391.3	354.7	401.9	501.1	416.4
204	109.8	284.7	186.1	215.4	151.4	167.6	246.0	112.1	59.1	321.7	418.0	448.2	515.5	592.7	521.4
206	355.3	177.5	164.1	185.8	148.7	219.1	294.1	186.6	222.9	462.3	530.9	518.5	576.2	692.3	604.5
208	330.6	226.7	185.3	214.6	153.7	230.9	317.4	179.5	200.9	396.3	463.7	452.0	510.5	625.3	537.9
210	249.8	231.1	157.6	191.9	113.2	185.3	278.4	119.5	124.7	347.5	426.9	429.8	493.2	596.6	513.3
212	206.0	244.9	158.9	193.1	112.3	171.7	264.9	100.8	88.2	327.9	413.7	425.4	490.7	586.5	506.3
214	301.5	284.9	221.2	254.7	178.7	252.3	345.2	186.6	186.0	317.4	386.4	379.2	440.1	550.7	464.5
216	193.4	199.6	109.3	143.0	63.3	121.4	214.9	51.5	61.3	375.3	503.6	465.4	509.8	639.7	549.2
218	488.2	342.1	324.2	355.6	308.9	384.2	463.5	338.9	360.4	463.9	503.6	465.4	509.8	639.7	549.2
220	659.5	344.7	432.7	415.2	442.4	475.7	494.7	486.4	536.2	793.1	850.1	821.4	863.3	997.0	906.6
222	462.2	270.4	278.1	294.6	261.9	332.0	403.2	298.4	366.6	543.6	588.5	552.7	597.8	727.4	636.9
224	448.1	220.5	241.3	254.6	236.2	299.2	361.8	276.9	319.3	502.1	568.5	524.7	573.7	700.1	609.8
226	518.8	181.4	260.8	251.7	284.3	312.5	333.3	327.8	375.9	591.8	620.5	620.5	620.5	744.1	654.3
228	462.2	270.4	278.1	294.6	261.9	332.0	403.2	298.4	366.6	543.6	588.5	552.7	597.8	727.4	636.9
230	448.1	220.5	241.3	254.6	236.2	299.2	361.8	276.9	319.3	502.1	568.5	524.7	573.7	700.1	609.8
232	518.8	181.4	260.8	251.7	284.3	312.5	333.3	327.8	375.9	591.8	620.5	620.5	620.5	744.1	654.3
234	462.2	270.4	278.1	294.6	261.9	332.0	403.2	298.4	366.6	543.6	588.5	552.7	597.8	727.4	636.9
236	448.1	220.5	241.3	254.6	236.2	299.2	361.8	276.9	319.3	502.1	568.5	524.7	573.7	700.1	609.8
238	518.8	181.4	260.8	251.7	284.3	312.5	333.3	327.8	375.9	591.8	620.5	620.5	620.5	744.1	654.3
240	462.2	270.4	278.1	294.6	261.9	332.0	403.2	298.4	366.6	543.6	588.5	552.7	597.8	727.4	636.9
242	448.1	220.5	241.3	254.6	236.2	299.2	361.8	276.9	319.3	502.1	568.5	524.7	573.7	700.1	609.8
244	518.8	181.4	260.8	251.7	284.3	312.5	333.3	327.8	375.9	591.8	620.5	620.5	620.5	744.1	654.3
246	462.2	270.4	278.1	294.6	261.9	332.0	403.2	298.4	366.6	543.6	588.5	552.7	597.8	727.4	636.9
248	448.1	220.5	241.3	254.6	236.2	299.2	361.8	276.9	319.3	502.1	568.5	524.7	573.7	700.1	609.8
250	518.8	181.4	260.8	251.7	284.3	312.5	333.3	327.8	375.9	591.8	620.5	620.5	620.5	744.1	654.3
252	462.2	270.4	278.1	294.6	261.9	332.0	403.2	298.4	366.6	543.6	588.5	552.7	597.8	727.4	636.9
254	448.1	220.5	241.3	254.6	236.2	299.2	361.8	276.9	319.3	502.1	568.5	524.7	573.7	700.1	609.8
256	518.8	181.4	260.8	251.7	284.3	312.5	333.3	327.8	375.9	591.8	620.5	620.5	620.5	744.1	654.3
258	462.2	270.4	278.1	294.6	261.9	332.0	403.2	298.4	366.6	543.6	588.5	552.7	597.8	727.4	636.9
260	448.1	220.5	241.3	254.6	236.2	299.2	361.8	276.9	319.3	502.1	568.5	524.7	573.7	700.1	609.8
262	518.8	181.4	260.8	251.7	284.3	312.5	333.3	327.8	375.9	591.8	620.5	620.5	620.5	744.1	654.3
264	462.2	270.4	278.1	294.6	261.9	332.0	403.2	298.4	366.6	543.6	588.5	552.7	597.8	727	

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 1

T to LATA #	951	430	432	434	436	438	440	442	444	446	448	450	452	454	456	458
120	708.9	916.0	869.0	918.2	959.1	1045.9	1035.1	978.6	1158.2	1069.5	1328.9	1269.4	1156.3	1215.9	1208.5	1260.4
122	584.1	805.6	746.7	799.7	834.1	938.6	912.1	861.8	1043.3	956.5	1220.1	1175.5	1031.8	1092.0	1081.0	1132.9
124	638.7	823.3	792.4	835.2	886.2	949.2	958.0	892.8	1068.9	978.6	1232.3	1198.3	1081.1	1139.2	1138.8	1190.5
126	510.4	728.6	672.0	723.9	760.7	861.5	837.7	785.6	966.8	879.7	1143.1	1098.9	958.1	1018.4	1009.1	1061.0
128	572.9	801.3	736.5	791.6	822.3	935.3	901.3	854.4	1036.5	950.6	1215.8	1168.9	1019.9	1080.4	1067.2	1119.0
130	533.0	764.8	696.9	752.9	781.9	899.3	861.3	816.1	998.3	913.1	1179.0	1130.9	979.5	1040.2	1026.3	1078.1
920	488.8	710.4	650.9	703.7	739.0	843.8	816.5	765.9	947.4	860.8	1125.0	1079.6	936.5	996.6	986.8	1038.7
132	393.0	614.0	554.4	606.6	643.3	747.9	720.1	668.7	850.3	763.8	1028.5	982.6	896.8	900.5	892.3	944.3
133	450.2	558.7	609.1	658.1	700.0	790.7	775.2	718.8	899.0	811.1	1072.9	1030.7	957.7	1016.6	1003.2	1065.2
134	512.6	611.1	663.3	715.7	761.7	840.9	835.4	775.2	954.0	865.0	1123.9	1084.9	929.1	985.4	992.2	1043.3
136	499.6	656.9	642.1	677.7	736.7	779.1	805.2	731.9	903.9	812.7	1061.4	1031.5	929.1	985.4	992.2	1043.3
138	438.1	610.3	585.1	624.5	680.7	736.5	749.7	689.9	856.1	765.6	1019.7	985.4	873.9	930.5	948.5	998.0
140	462.9	622.9	601.1	632.9	698.9	764.6	755.5	669.4	829.9	738.1	1072.9	1030.7	957.7	1016.6	1003.2	1065.2
974	499.0	626.7	629.4	657.6	727.1	742.7	788.5	707.8	873.8	782.0	1022.7	998.5	912.1	966.4	979.3	1029.6
220	300.1	538.1	463.9	520.6	549.6	673.8	628.4	584.3	766.9	683.0	950.6	899.6	747.3	807.7	796.2	848.1
222	342.1	561.4	502.5	554.1	592.3	695.5	668.5	616.1	797.6	711.1	975.9	929.9	789.4	849.1	842.2	894.2
224	385.9	605.1	546.8	598.5	636.1	738.8	712.6	660.4	841.8	755.2	1019.6	974.1	833.4	893.2	885.6	937.6
226	303.0	479.9	448.3	488.8	543.9	609.8	613.0	546.4	723.7	634.2	892.7	854.2	736.6	797.4	797.4	848.8
228	313.2	531.1	472.9	524.0	563.2	665.3	639.0	585.9	767.3	680.8	945.6	899.5	760.2	819.8	813.8	865.7
230	317.7	447.2	442.6	471.9	510.7	610.0	602.0	523.9	694.3	603.0	852.8	821.8	725.8	780.6	792.5	842.8
232	395.6	581.5	546.7	599.6	641.1	710.7	712.2	647.8	825.3	735.8	993.8	955.8	835.4	893.4	894.2	945.8
234	332.7	406.6	430.8	474.4	528.0	519.6	580.6	492.2	652.7	560.9	776.0	754.2	702.7	754.2	774.5	823.4
924	443.9	515.5	546.6	561.6	643.7	620.8	695.1	604.2	759.1	687.5	855.8	878.9	816.5	867.0	869.4	937.9
236	208.1	407.5	358.4	404.5	452.4	541.5	524.3	464.9	645.4	558.0	822.0	777.3	647.1	705.6	705.5	757.1
238	240.8	442.2	393.4	439.9	486.8	575.8	559.3	500.3	680.7	592.6	856.8	812.6	682.0	740.6	739.7	791.3
240	255.8	418.6	392.7	429.9	489.4	547.8	556.1	486.4	662.6	572.8	830.8	792.8	679.9	736.6	742.8	793.9
242	207.2	448.6	370.7	427.7	457.1	584.7	535.4	491.7	674.3	591.3	859.4	807.0	654.7	715.0	705.1	757.0
244	150.0	215.8	212.0	233.3	309.2	347.8	364.7	285.5	459.8	369.9	629.7	589.9	488.1	542.1	557.4	606.9
246	175.5	349.4	311.8	352.2	408.1	482.7	476.1	410.8	589.8	501.4	763.9	721.2	554.0	613.1	610.7	662.4
250	126.1	269.3	224.9	258.1	322.6	387.6	385.4	315.1	493.3	404.9	668.0	624.6	509.3	565.3	574.8	625.3
252	105.1	369.3	268.9	332.2	349.9	504.2	430.4	397.5	579.2	500.7	769.9	690.2	582.0	637.6	647.8	698.3
927	182.9	315.9	297.8	339.6	395.5	446.4	458.1	384.6	540.9	470.3	723.3	680.3	561.4	618.2	624.7	675.6
928	149.4	308.7	274.4	329.3	371.5	423.3	437.6	370.3	590.5	500.5	758.8	720.5	611.4	667.3	676.4	727.1
929	203.3	346.0	326.2	359.5	423.7	476.0	487.5	460.6	630.3	500.5	758.8	720.5	611.4	667.3	676.4	727.1
254	268.4	440.4	418.5	489.5	574.6	544.9	623.0	540.9	487.0	470.3	723.3	680.3	561.4	618.2	624.7	675.6
322	388.1	440.4	418.5	489.5	574.6	544.9	623.0	540.9	487.0	470.3	723.3	680.3	561.4	618.2	624.7	675.6
324	396.0	352.7	434.8	424.0	522.3	433.3	553.4	449.7	579.7	491.0	696.8	690.0	666.3	709.2	746.0	790.2
325	407.5	431.1	483.8	488.0	578.1	527.4	621.1	524.1	669.5	578.8	797.3	785.7	739.6	767.1	815.9	862.7
326	500.3	471.4	552.6	543.6	641.4	544.3	673.0	568.8	692.7	605.7	797.3	797.9	785.1	826.9	865.2	909.1
328	436.5	351.0	453.5	432.4	534.7	412.3	556.3	448.9	516.7	476.4	663.0	664.2	663.0	701.6	744.9	786.7
923	418.7	314.2	427.5	400.1	503.9	367.0	520.1	411.6	516.7	433.0	614.8	617.2	623.4	660.1	706.1	746.7
330	566.8	358.0	506.3	455.5	557.7	399.6	545.7	439.8	478.9	416.0	517.7	546.4	622.7	644.0	706.6	737.9
332	601.8	512.5	623.1	598.7	702.1	552.7	718.4	609.5	702.0	623.2	773.0	790.2	819.2	853.1	902.4	941.7
334	537.2	446.8	555.9	532.0	635.2	492.8	652.7	544.1	642.6	561.6	723.6	735.5	755.2	790.5	838.1	876.1
336	526.0	395.4	520.0	486.6	591.3	424.1	599.6	490.3	572.9	496.0	643.7	659.7	695.4	726.7	779.2	816.7
338	526.6	373.2	506.3	487.3	572.1	389.7	574.6	465.4	537.1	463.3	600.6	619.5	665.6	694.4	749.7	785.7
937	469.9	368.0	479.0	453.4	556.9	417.8	573.8	465.4	567.7	485.1	658.5	665.0	676.9	713.1	759.7	800.1
938	577.7	419.2	555.4	514.4	619.0	425.6	618.1	509.4	570.3	500.6	619.5	645.2	705.1	731.2	769.3	823.7
340	522.9	515.5	587.8	563.6	679.0	593.6	714.5	612.1	741.3	653.4	849.3	848.4	828.7	872.2	907.9	952.7
342	683.7	844.5	938.8	924.7	1025.2	891.9	1049.8	942.3	1041.4	961.9	1105.1	1127.6	1155.2	1191.0	1237.7	1278.4
344	610.8	595.4	674.1	667.2	764.2	664.9	736.9	692.8	814.1	728.1	910.4	915.9	909.1	950.6	989.3	1033.1
346	590.8	553.9	641.8	630.0	729.2	616.7	757.6	651.8	766.3	681.8	857.3	865.3	867.1	906.7	948.3	991.0
348	640.1	584.3	681.8	665.0	729.2	636.0	789.6	682.1	785.9	704.3	864.4	878.6	895.4	932.2	977.7	1018.8
350	800.8	720.7	831.4	807.6	911.1	752.5	926.3	817.2	900.1	825.2	950.7	978.5	1024.7	1056.1	1108.3	1146.2
352	942.8	635.7	958.8	927.5	1032.2	847.6	1038.4	929.1	989.8	823.0	1012.6	1053.0	1127.8	1212.0	1246.1	1286.1
354	787.7	676.9	799.6	768.3	873.0	693.6	880.3	770.9	838.2	768.3	874.7	908.3	971.8	999.1	1056.0	1091.2
356	728.0	635.7	750.3	723.9	827.9	665.3	841.0	731.8	812.8	738.2	865.5	891.9	938.1	969.1	1021.9	1059.5
358	667.6	559.2	679.0	649.3	753.7	584.7	763.8	654.4	732.0	658.0	785.4	810.9	859.0	894.9	942.9	979.8
360	741.9	623.9	749.8	716.4	821.1	587.5	826.4	717.1	781.6	712.5	818.3	851.5	916.5	943.1	1000.7	1035.5
362	635.5	406.1	561.6	501.6	597.4	349.6	570.3	472.4	468.8	424.1	464.5	510.4	628.1	639.2	709.8	734.5
364	754.6	617.9	749.7	712.3	817.1	622.0	817.7	709.0	763.4	697.8	790.5	827.6	903.4	927.4	987.6	1020.7

EXHIBIT 5.4 LATR-TO-LATA DISTANCES, Part 1
LATR-TO-LATA Distances (miles)

To LATA *	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
120	1401.7	1392.7	1392.8	1392.9	1393.0	1393.1	1393.2	1393.3	1393.4	1393.5	1393.6	1393.7	1393.8	1393.9	1394.0	1394.1	1394.2	1394.3	1394.4	1394.5	1394.6
121	1270.1	1264.3	1264.4	1264.5	1264.6	1264.7	1264.8	1264.9	1265.0	1265.1	1265.2	1265.3	1265.4	1265.5	1265.6	1265.7	1265.8	1265.9	1266.0	1266.1	1266.2
122	1342.2	1334.3	1334.4	1334.5	1334.6	1334.7	1334.8	1334.9	1335.0	1335.1	1335.2	1335.3	1335.4	1335.5	1335.6	1335.7	1335.8	1335.9	1336.0	1336.1	1336.2
123	1262.0	1254.1	1254.2	1254.3	1254.4	1254.5	1254.6	1254.7	1254.8	1254.9	1255.0	1255.1	1255.2	1255.3	1255.4	1255.5	1255.6	1255.7	1255.8	1255.9	1256.0
124	1242.2	1234.3	1234.4	1234.5	1234.6	1234.7	1234.8	1234.9	1235.0	1235.1	1235.2	1235.3	1235.4	1235.5	1235.6	1235.7	1235.8	1235.9	1236.0	1236.1	1236.2
125	1222.0	1214.1	1214.2	1214.3	1214.4	1214.5	1214.6	1214.7	1214.8	1214.9	1215.0	1215.1	1215.2	1215.3	1215.4	1215.5	1215.6	1215.7	1215.8	1215.9	1216.0
126	1202.0	1194.1	1194.2	1194.3	1194.4	1194.5	1194.6	1194.7	1194.8	1194.9	1195.0	1195.1	1195.2	1195.3	1195.4	1195.5	1195.6	1195.7	1195.8	1195.9	1196.0
127	1182.0	1174.1	1174.2	1174.3	1174.4	1174.5	1174.6	1174.7	1174.8	1174.9	1175.0	1175.1	1175.2	1175.3	1175.4	1175.5	1175.6	1175.7	1175.8	1175.9	1176.0
128	1162.0	1154.1	1154.2	1154.3	1154.4	1154.5	1154.6	1154.7	1154.8	1154.9	1155.0	1155.1	1155.2	1155.3	1155.4	1155.5	1155.6	1155.7	1155.8	1155.9	1156.0
129	1142.0	1134.1	1134.2	1134.3	1134.4	1134.5	1134.6	1134.7	1134.8	1134.9	1135.0	1135.1	1135.2	1135.3	1135.4	1135.5	1135.6	1135.7	1135.8	1135.9	1136.0
130	1122.0	1114.1	1114.2	1114.3	1114.4	1114.5	1114.6	1114.7	1114.8	1114.9	1115.0	1115.1	1115.2	1115.3	1115.4	1115.5	1115.6	1115.7	1115.8	1115.9	1116.0
131	1102.0	1094.1	1094.2	1094.3	1094.4	1094.5	1094.6	1094.7	1094.8	1094.9	1095.0	1095.1	1095.2	1095.3	1095.4	1095.5	1095.6	1095.7	1095.8	1095.9	1096.0
132	1082.0	1074.1	1074.2	1074.3	1074.4	1074.5	1074.6	1074.7	1074.8	1074.9	1075.0	1075.1	1075.2	1075.3	1075.4	1075.5	1075.6	1075.7	1075.8	1075.9	1076.0
133	1062.0	1054.1	1054.2	1054.3	1054.4	1054.5	1054.6	1054.7	1054.8	1054.9	1055.0	1055.1	1055.2	1055.3	1055.4	1055.5	1055.6	1055.7	1055.8	1055.9	1056.0
134	1042.0	1034.1	1034.2	1034.3	1034.4	1034.5	1034.6	1034.7	1034.8	1034.9	1035.0	1035.1	1035.2	1035.3	1035.4	1035.5	1035.6	1035.7	1035.8	1035.9	1036.0
135	1022.0	1014.1	1014.2	1014.3	1014.4	1014.5	1014.6	1014.7	1014.8	1014.9	1015.0	1015.1	1015.2	1015.3	1015.4	1015.5	1015.6	1015.7	1015.8	1015.9	1016.0
136	1002.0	994.1	994.2	994.3	994.4	994.5	994.6	994.7	994.8	994.9	995.0	995.1	995.2	995.3	995.4	995.5	995.6	995.7	995.8	995.9	996.0
137	982.0	974.1	974.2	974.3	974.4	974.5	974.6	974.7	974.8	974.9	975.0	975.1	975.2	975.3	975.4	975.5	975.6	975.7	975.8	975.9	976.0
138	962.0	954.1	954.2	954.3	954.4	954.5	954.6	954.7	954.8	954.9	955.0	955.1	955.2	955.3	955.4	955.5	955.6	955.7	955.8	955.9	956.0
139	942.0	934.1	934.2	934.3	934.4	934.5	934.6	934.7	934.8	934.9	935.0	935.1	935.2	935.3	935.4	935.5	935.6	935.7	935.8	935.9	936.0
140	922.0	914.1	914.2	914.3	914.4	914.5	914.6	914.7	914.8	914.9	915.0	915.1	915.2	915.3	915.4	915.5	915.6	915.7	915.8	915.9	916.0
141	902.0	894.1	894.2	894.3	894.4	894.5	894.6	894.7	894.8	894.9	895.0	895.1	895.2	895.3	895.4	895.5	895.6	895.7	895.8	895.9	896.0
142	882.0	874.1	874.2	874.3	874.4	874.5	874.6	874.7	874.8	874.9	875.0	875.1	875.2	875.3	875.4	875.5	875.6	875.7	875.8	875.9	876.0
143	862.0	854.1	854.2	854.3	854.4	854.5	854.6	854.7	854.8	854.9	855.0	855.1	855.2	855.3	855.4	855.5	855.6	855.7	855.8	855.9	856.0
144	842.0	834.1	834.2	834.3	834.4	834.5	834.6	834.7	834.8	834.9	835.0	835.1	835.2	835.3	835.4	835.5	835.6	835.7	835.8	835.9	836.0
145	822.0	814.1	814.2	814.3	814.4	814.5	814.6	814.7	814.8	814.9	815.0	815.1	815.2	815.3	815.4	815.5	815.6	815.7	815.8	815.9	816.0
146	802.0	794.1	794.2	794.3	794.4	794.5	794.6	794.7	794.8	794.9	795.0	795.1	795.2	795.3	795.4	795.5	795.6	795.7	795.8	795.9	796.0
147	782.0	774.1	774.2	774.3	774.4	774.5	774.6	774.7	774.8	774.9	775.0	775.1	775.2	775.3	775.4	775.5	775.6	775.7	775.8	775.9	776.0
148	762.0	754.1	754.2	754.3	754.4	754.5	754.6	754.7	754.8	754.9	755.0	755.1	755.2	755.3	755.4	755.5	755.6	755.7	755.8	755.9	756.0
149	742.0	734.1	734.2	734.3	734.4	734.5	734.6	734.7	734.8	734.9	735.0	735.1	735.2	735.3	735.4	735.5	735.6	735.7	735.8	735.9	736.0
150	722.0	714.1	714.2	714.3	714.4	714.5	714.6	714.7	714.8	714.9	715.0	715.1	715.2	715.3	715.4	715.5	715.6	715.7	715.8	715.9	716.0
151	702.0	694.1	694.2	694.3	694.4	694.5	694.6	694.7	694.8	694.9	695.0	695.1	695.2	695.3	695.4	695.5	695.6	695.7	695.8	695.9	696.0
152	682.0	674.1	674.2	674.3	674.4	674.5	674.6	674.7	674.8	674.9	675.0	675.1	675.2	675.3	675.4	675.5	675.6	675.7	675.8	675.9	676.0
153	662.0	654.1	654.2	654.3	654.4	654.5	654.6	654.7	654.8	654.9	655.0	655.1	655.2	655.3	655.4	655.5	655.6	655.7	655.8	655.9	656.0
154	642.0	634.1	634.2	634.3	634.4	634.5	634.6	634.7	634.8	634.9	635.0	635.1	635.2	635.3	635.4	635.5	635.6	635.7	635.8	635.9	636.0
155	622.0	614.1	614.2	614.3	614.4	614.5	614.6	614.7	614.8	614.9	615.0	615.1	615.2	615.3	615.4	615.5	615.6	615.7	615.8	615.9	616.0
156	602.0	594.1	594.2	594.3	594.4	594.5	594.6	594.7	594.8	594.9	595.0	595.1	595.2	595.3	595.4	595.5	595.6	595.7	595.8	595.9	596.0
157	582.0	574.1	574.2	574.3	574.4	574.5	574.6	574.7	574.8	574.9	575.0	575.1	575.2	575.3	575.4	575.5	575.6	575.7	575.8	575.9	576.0
158	562.0	554.1	554.2	554.3	554.4	554.5	554.6	554.7	554.8	554.9	555.0	555.1	555.2	555.3	555.4	555.5	555.6	555.7	555.8	555.9	556.0
159	542.0	534.1	534.2	534.3	534.4	534.5	534.6	534.7	534.8	534.9	535.0	535.1	535.2	535.3	535.4	535.5	535.6	535.7	535.8	535.9	536.0
160	522.0	514.1	514.2	514.3	514.4	514.5	514.6	514.7	514.8	514.9	515.0	515.1	515.2	515.3	515.4	515.5	515.6	515.7	515.8	515.9	516.0
161	502.0	494.1	494.2	494.3	494.4	494.5	494.6	494.7	494.8	494.9	495.0	495.1	495.2	495.3	495.4	495.5	495.6	495.7	495.8	495.9	496.0
162	482.0	474.1	474.2	474.3	474.4	474.5	474.6	474.7	474.8	474.9	475.0	475.1	475.2	475.3	475.4	475.5	475.6	475.7	475.8	475.9	476.0
163	462.0	454.1	454.2	454.3	454.4	454.5	454.6	454.7	454.8	454.9	455.0	455.1	455.2	455.3	455.4	455.5	455.6	455.7	455.8	455.9	456.0
164	442.0	434.1	434.2	434.3	434.4	434.5	434.6	434.7	434.8	434.9	435.0	435.1	435.2	435.3	435.4	435.5	435.6	435.7	435.8	435.9	436.0
165	422.0	414.1	414.2	414.3	414.4	414.5	414.6	414.7	414.8	414.9	415.0	415.1	415.2	415.3	415.4	415.5	415.6	415.7	415.8	415.9	416.0
166	402.0	394.1	394.2	394.3	394.4	394.5	394.6	394.7	394.8	394.9	395.0	395.1	395.2	395.3	395.4	395.5	395.6	395.7	395.8	395.9	396.0
167	382.0	374.1	374.2	374.3	374.4	374.5	374.6	374.7	374.8	374.9	375.0	375.1	375.2	375.3	375.4	375.5	375.6	375.7	375.8	375.9	376.0
168	362.0	354.1	354.2	354.3	354.4	354.5	354.6	354.7	354.8	354.9	355.0	355.1	355.2	355.3	355.4	355.5	355.6	355.7	355.8	355.9	356.0
169	342.0	334.1	334.2	334.3	334.4	334.5	334.6	334.7	334.8	334.9	335.0	335.1	335.2	335.3	335.4	335.5	335.6	335.7	335.8	335.9	336.0
170	322.0	314.1	314.2	314.3	314.4	314.5	314.6	314.7	314.8	314.9	315.0	315.1	315.2	315.3	315.4	315.5	315.6	315.7	315.8	315.9	316.0
171	302.0	294.1	294.2	294.3	294.4	294.5	294.6	294.7	294.8	294.9	295.0	295.1	295.2	295.3	295.4	295.5	295.6	295.7	295.8	295.9	296.0
172	282.0	274.1	274.2	274.3	274.4	274.5	274.6	274.													

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 1
LATA-to-LATA Distances (miles)

To LATA #	482	484	486	488	490	492	520	521	522	524	526	528	530	532	534	536
120	1346.2	1400.9	1467.2	1523.6	1460.6	1478.5	1082.3	1177.9	1276.4	1278.4	1396.8	1324.7	1335.2	1454.1	1332.7	1538.8
122	1252.4	1404.4	1404.4	1428.0	1358.8	1361.3	1022.0	1122.3	1215.0	1231.4	1328.4	1247.4	1254.7	1404.6	1267.7	1478.4
124	1237.9	1299.3	1372.9	1416.0	1372.6	1372.1	961.4	1055.9	1155.1	1155.1	1277.3	1208.3	1220.1	1331.0	1207.3	1417.9
126	1176.0	1220.3	1329.5	1351.4	1281.7	1304.5	953.3	1054.8	1145.5	1166.6	1256.9	1173.8	1180.4	1336.5	1233.4	1408.8
128	1253.7	1295.1	1409.1	1426.5	1357.0	1381.3	1033.6	1134.8	1225.9	1245.9	1337.4	1253.9	1260.3	1418.2	1202.5	1489.2
130	1230.8	1259.6	1379.0	1394.9	1321.9	1347.3	1010.9	1113.2	1202.3	1226.5	1311.5	1225.7	1231.2	1397.7	1263.6	1465.4
132	1161.0	1203.3	1316.8	1335.9	1265.0	1288.8	945.9	1046.0	1137.4	1247.2	1311.4	1162.4	1168.3	1332.5	1215.7	1400.5
134	1068.7	1107.9	1228.4	1242.7	1170.0	1195.1	871.3	975.3	1060.6	1092.9	1166.0	1077.1	1081.5	1261.2	1150.5	1322.9
136	1102.7	1148.7	1255.4	1278.4	1209.7	1231.7	881.7	983.8	1073.4	1097.1	1183.8	1100.1	1106.6	1268.2	1154.3	1336.6
138	1144.5	1196.4	1291.0	1321.3	1256.5	1275.6	902.1	1001.8	1095.3	1110.5	1210.2	1131.7	1140.2	1283.8	1166.8	1358.7
140	1061.9	1125.6	1197.0	1240.1	1183.2	1196.5	791.8	889.0	985.7	993.7	1105.0	1033.2	1044.2	1168.2	1049.3	1248.6
142	1031.9	1088.3	1175.5	1209.3	1147.4	1164.4	786.4	886.8	979.4	997.2	1093.7	1015.5	1024.4	1169.6	1053.9	1242.7
144	951.9	1026.9	1075.5	1130.3	1081.6	1089.0	658.2	753.5	852.2	856.1	974.5	908.4	921.9	1031.1	911.4	1114.4
146	1010.7	1034.9	1138.5	1189.2	1137.3	1147.0	724.3	819.8	918.3	922.3	1040.0	972.4	985.1	1097.3	977.4	1160.6
148	1005.7	1034.9	1174.8	1176.6	1098.2	1127.7	845.9	951.8	1029.9	1075.2	1127.0	1030.6	1031.8	1236.3	1133.6	1289.9
150	1018.0	1055.7	1179.7	1191.5	1117.9	1143.6	830.6	935.4	1018.4	1055.3	1121.2	1030.1	1033.7	1221.9	1113.4	1279.9
152	1059.1	1098.7	1218.6	1233.2	1160.7	1185.6	861.5	965.5	1050.8	1083.3	1156.1	1067.2	1071.7	1251.6	1141.2	1313.0
154	919.5	966.3	1074.9	1095.1	1027.0	1048.5	717.5	822.1	908.8	941.9	1010.5	922.0	927.1	1108.5	1000.0	1167.7
156	988.7	1025.6	1151.7	1161.9	1087.9	1114.0	807.5	912.7	994.2	1033.9	1095.5	1003.1	1006.2	1199.3	1092.1	1255.1
158	863.4	919.7	1010.7	1040.6	978.6	995.5	640.1	744.0	830.0	862.2	938.0	853.9	860.9	1030.0	920.2	1092.7
160	795.1	859.7	935.2	973.1	916.7	929.4	556.7	650.3	747.1	776.5	856.9	775.6	784.1	946.2	836.5	1010.1
162	811.7	868.8	955.2	1005.1	1002.5	1009.9	582.0	679.3	776.0	785.8	896.4	828.5	841.7	959.5	842.0	1038.8
164	866.8	901.9	1033.4	1071.6	997.9	1023.8	729.7	835.7	913.4	959.7	1011.2	916.3	918.5	1123.1	1016.3	1172.9
166	886.7	935.8	1063.0	1071.6	997.9	1023.8	729.7	835.7	913.4	959.7	1011.2	916.3	918.5	1123.1	1016.3	1172.9
168	859.0	904.4	1016.8	1034.1	1009.3	1040.7	788.0	894.5	966.5	1021.6	1057.2	956.1	955.2	1179.9	1080.3	1222.8
170	821.3	845.6	945.5	985.3	965.3	987.3	760.4	876.1	932.7	986.8	1057.2	956.1	955.2	1179.9	1080.3	1222.8
172	874.1	907.5	974.1	1013.7	904.8	931.0	656.3	764.9	837.0	892.4	929.4	830.7	831.3	1050.2	951.1	1093.9
174	806.8	842.6	914.1	959.2	894.2	925.8	596.8	680.3	764.9	837.0	929.4	830.7	831.3	1050.2	951.1	1093.9
176	717.8	748.3	801.3	866.2	811.0	839.4	606.4	712.6	775.8	843.8	859.1	754.5	752.3	994.1	902.2	1027.3
178	850.4	881.6	937.9	1013.7	926.4	963.0	768.1	874.2	935.7	1005.5	1014.6	905.8	900.8	1155.0	1064.0	1184.6
180	864.4	894.5	929.1	937.9	866.0	890.3	611.4	718.0	789.7	845.9	882.3	784.3	785.5	1003.1	904.5	1046.6
182	768.8	802.5	838.5	904.5	864.9	892.0	634.7	741.3	809.9	870.5	898.7	797.6	797.2	1018.3	921.9	1064.9
184	791.3	833.5	893.6	965.5	894.7	918.1	626.0	732.4	807.0	858.8	902.5	806.7	808.8	1018.3	921.9	1064.9
186	635.9	693.2	789.3	812.8	751.3	767.5	462.9	559.5	640.9	698.7	733.9	639.1	642.5	853.9	757.3	897.2
188	729.9	787.0	880.1	907.0	845.4	861.8	530.4	636.4	714.9	761.1	816.0	726.4	731.6	922.8	819.7	975.4
190	612.4	654.5	760.1	785.9	715.2	738.3	497.1	602.6	662.5	735.0	744.5	640.5	639.2	862.0	793.2	912.9
192	785.1	830.8	903.8	963.2	919.8	923.3	489.9	588.1	683.8	697.4	803.6	736.4	750.1	869.9	754.1	946.7
194	801.1	844.5	930.8	979.5	929.3	937.6	532.6	633.7	725.5	747.1	840.9	766.8	778.0	917.8	804.5	988.9
196	601.5	642.0	785.3	838.7	794.2	798.3	395.0	499.0	585.6	619.1	697.2	621.1	632.4	785.3	677.4	848.6
198	769.2	827.7	893.3	947.5	901.2	906.7	489.0	589.4	682.2	702.2	799.1	668.3	685.5	873.2	759.5	945.6
200	610.6	652.0	725.9	788.1	749.8	749.5	330.1	434.3	520.8	555.4	599.8	521.1	532.1	699.2	597.5	754.7
202	583.9	620.0	685.1	741.7	701.8	702.5	306.7	412.8	492.7	538.6	599.8	521.1	532.1	699.2	597.5	754.7
204	718.3	801.6	838.3	896.4	853.4	856.5	432.5	533.6	625.6	647.9	742.4	671.9	684.8	817.9	705.5	889.0
206	415.3	527.4	510.2	587.6	567.2	554.3	149.1	252.7	316.7	386.2	418.0	341.9	356.2	532.3	443.9	575.7
208	677.0	769.8	749.3	746.3	791.3	781.7	293.1	387.7	486.8	495.6	612.4	558.9	578.0	668.2	552.6	748.5
210	642.4	747.5	731.5	815.6	791.3	781.7	293.1	387.7	486.8	495.6	612.4	558.9	578.0	668.2	552.6	748.5
212	558.6	664.6	651.7	732.1	707.8	698.0	229.6	331.9	422.7	451.3	504.1	437.7	454.0	592.3	489.7	686.1
214	619.5	698.0	608.0	686.2	662.1	652.0	200.3	305.8	389.9	431.1	504.1	437.7	454.0	592.3	489.7	686.1
216	630.0	702.2	702.2	770.6	737.3	733.6	295.2	398.6	487.0	518.6	602.5	533.8	548.3	684.7	577.0	750.4
218	514.1	629.5	592.0	683.4	668.1	652.3	159.9	282.4	353.2	384.0	474.3	419.0	439.1	548.6	442.6	616.5
220	790.4	885.5	890.0	933.6	923.8	929.3	452.0	542.6	644.9	641.4	722.2	718.1	736.1	816.9	696.4	904.9
222	986.0	1111.1	1016.3	1143.2	1144.7	1119.6	560.0	596.2	705.6	624.9	845.0	846.0	876.5	708.6	660.7	919.8
224	834.3	938.5	916.3	1006.6	963.1	973.5	462.1	541.5	649.1	782.5	728.3	666.0	707.5	755.2	631.7	851.5
226	778.0	883.5	859.9	950.3	927.4	917.2	407.4	489.5	595.9	578.6	728.3	666.0	707.5	755.2	631.7	851.5
228	770.6	883.5	859.9	950.3	927.4	917.2	407.4	489.5	595.9	578.6	728.3	666.0	707.5	755.2	631.7	851.5
230	745.0	869.3	759.6	904.6	890.1	868.8	307.0	450.1	589.7	590.0	621.6	589.9	621.6	712.9	516.3	769.0
232	670.3	791.9	722.6	833.3	827.4	806.2	259.9	328.5	438.0	437.8	626.8	612.9	641.3	613.4	485.6	726.1
234	634.7	713.8	644.5	844.5	816.6	816.6	255.9	299.8	411.0	359.7	550.3	542.4	572.4	555.6	408.4	647.4
236	437.0	454.9	402.0	491.6	485.2	462.9	124.3	195.8	226.8	327.0	312.4	248.0	248.0	450.3	380.4	476.1
238	649.5	761.8	671.8	800.9	809.9	779.7	217.8	255.5	366.5	315.7	506.0	501.4	532.2	492.1	365.4	602.5

EXHIBIT 5-4 LATR-TO-LATA DISTANCES, Part 1 LATA-to-LATA Distances (Miles)

To LATA *	538	540	542	544	546	548	550	552	554	556	558	560	562	564	566	568
120	1441.5	2107.7	1886.7	1815.4	1755.1	1642.6	1760.8	1610.5	1531.8	1675.5	1765.1	1690.2	1616.6	1871.3	1837.0	1959.9
122	1380.9	2051.3	1824.1	1756.3	1702.6	1577.4	1692.7	1536.7	1451.6	1597.4	1684.6	1602.3	1526.2	1782.8	1755.7	1867.9
124	1320.1	1985.2	1767.8	1693.5	1632.2	1522.1	1640.9	1492.4	1416.2	1558.8	1649.0	1578.0	1505.7	1721.5	1690.9	1849.5
126	1311.4	1982.4	1753.1	1686.9	1623.4	1506.4	1620.8	1463.6	1377.2	1523.4	1610.0	1526.5	1450.1	1706.8	1680.9	1791.5
128	1391.8	2063.7	1833.6	1767.3	1715.3	1586.9	1701.3	1543.9	1457.0	1603.3	1689.7	1605.2	1528.4	1785.3	1760.5	1869.2
130	1368.1	2039.4	1808.2	1743.5	1693.4	1561.6	1675.0	1518.2	1427.6	1574.3	1660.0	1573.5	1496.1	1753.3	1730.4	1836.2
132	1303.2	1974.4	1743.7	1678.6	1628.3	1497.1	1610.8	1452.6	1364.9	1511.4	1597.6	1512.6	1435.7	1692.7	1668.2	1776.6
133	1225.9	1897.1	1662.8	1600.6	1554.1	1416.5	1528.5	1368.0	1277.6	1449.6	1509.6	1421.7	1344.1	1601.4	1579.8	1684.0
134	1261.2	1931.2	1705.3	1636.5	1582.1	1458.6	1574.6	1420.1	1337.1	1482.2	1570.4	1491.3	1416.5	1622.1	1641.8	1759.2
136	1151.2	1819.1	1597.6	1525.8	1468.0	1351.4	1469.1	1318.6	1221.8	1384.0	1474.0	1401.7	1329.4	1582.8	1546.1	1673.2
138	1145.3	1815.6	1589.0	1520.7	1467.2	1342.3	1458.1	1303.7	1221.2	1366.1	1454.6	1376.9	1302.7	1557.8	1526.1	1645.9
140	1017.2	1683.4	1464.7	1391.0	1331.5	1219.0	1337.8	1190.5	1117.1	1258.3	1349.7	1283.5	1213.7	1464.3	1422.2	1557.4
142	1083.3	1743.8	1530.7	1457.2	1397.7	1284.9	1403.5	1255.5	1180.7	1322.6	1413.6	1345.4	1274.8	1526.3	1486.0	1618.6
144	1193.3	1862.4	1622.5	1565.6	1505.3	1377.5	1486.0	1321.6	1242.1	1376.6	1461.0	1371.7	1293.7	1551.1	1530.9	1633.1
146	1183.1	1854.0	1617.9	1557.3	1512.8	1371.9	1482.9	1321.2	1229.4	1376.8	1461.0	1371.7	1293.7	1551.1	1530.9	1633.1
148	1216.0	1887.2	1652.9	1590.8	1544.3	1406.6	1518.6	1358.1	1267.8	1414.8	1499.8	1412.1	1334.5	1591.8	1570.0	1674.5
150	1070.9	1741.9	1507.3	1445.4	1399.9	1261.0	1373.0	1212.8	1129.5	1270.2	1358.8	1270.4	1193.8	1450.6	1426.3	1535.1
152	995.5	1666.9	1434.7	1370.7	1323.0	1188.1	1301.6	1143.7	1057.7	1203.6	1290.8	1210.1	1135.1	1390.8	1361.9	1477.9
154	1147.3	1818.6	1588.3	1522.8	1472.5	1341.6	1455.9	1298.7	1212.8	1358.8	1445.9	1364.1	1288.6	1544.7	1516.9	1630.8
156	912.8	1584.1	1353.2	1288.1	1239.5	1106.5	1220.8	1084.5	981.0	1126.1	1214.3	1137.3	1063.9	1318.3	1285.8	1407.4
158	941.4	1609.4	1368.1	1316.0	1258.8	1142.0	1260.2	1111.5	1037.0	1187.8	1269.8	1202.9	1133.2	1383.7	1342.3	1476.9
160	1053.4	1721.6	1480.9	1424.9	1386.2	1236.2	1344.2	1179.7	1084.4	1232.2	1314.6	1231.9	1143.1	1400.7	1363.8	1481.2
162	1076.9	1746.2	1507.1	1449.4	1408.8	1261.8	1370.9	1207.4	1113.5	1261.1	1344.3	1253.1	1174.7	1432.2	1413.8	1513.6
164	1020.5	1690.9	1453.9	1394.1	1351.3	1208.1	1318.8	1157.1	1066.0	1213.1	1297.9	1210.8	1133.7	1390.7	1368.1	1474.5
166	1127.9	1793.8	1550.6	1497.3	1461.5	1307.0	1412.8	1246.3	1147.7	1295.7	1375.9	1278.3	1198.0	1455.5	1444.1	1532.7
168	990.1	1551.0	1305.1	1255.2	1224.6	1063.3	1166.6	998.9	899.0	1047.0	1127.1	1030.4	950.8	1208.4	1195.3	1287.5
170	996.7	1665.7	1423.8	1369.0	1332.2	1179.6	1286.7	1121.5	1025.3	1173.2	1255.3	1162.0	1083.1	1340.7	1324.3	1421.3
172	1027.6	1693.8	1444.0	1393.8	1362.0	1201.9	1305.5	1137.5	1038.8	1184.8	1263.9	1164.5	1083.8	1341.2	1331.5	1417.8
174	933.8	1595.6	1349.9	1299.7	1268.4	1107.7	1211.5	1043.8	943.9	1091.9	1171.8	1074.9	994.6	1252.1	1239.9	1330.7
176	1092.1	1750.0	1501.6	1454.9	1426.7	1261.6	1362.3	1192.5	1088.5	1236.1	1312.4	1207.9	1126.0	1382.3	1378.7	1465.1
178	951.4	1618.6	1377.0	1321.9	1284.9	1132.6	1240.1	1075.3	979.9	1127.7	1210.4	1118.7	1040.3	1297.8	1279.7	1379.5
180	970.3	1635.4	1391.9	1339.0	1304.4	1148.4	1254.3	1088.0	990.3	1136.3	1219.5	1124.7	1045.3	1303.0	1288.2	1382.7
182	969.7	1638.1	1398.0	1341.3	1302.4	1153.0	1261.6	1097.8	1003.9	1151.5	1234.9	1144.8	1066.9	1324.3	1304.5	1406.7
184	801.8	1468.1	1172.9	1122.9	1085.1	984.4	1093.3	930.3	838.4	985.6	1070.4	984.9	908.8	1165.3	1140.7	1251.0
186	879.0	1549.3	1312.7	1252.5	1210.1	1066.7	1177.9	1017.2	928.1	1074.8	1160.7	1077.6	1002.2	1258.2	1231.5	1344.7
188	819.7	1481.1	1235.7	1185.1	1154.3	993.2	1097.5	930.4	831.9	979.9	1061.1	967.3	888.5	1146.1	1129.8	1227.4
190	849.3	1518.0	1295.6	1244.1	1168.2	1049.4	1167.5	1018.8	945.1	1086.3	1177.7	1112.5	1043.7	1293.1	1250.2	1387.1
192	891.4	1561.9	1335.5	1266.9	1214.2	1088.8	1205.3	1052.8	974.3	1117.6	1207.5	1136.5	1065.3	1317.5	1279.6	1409.2
194	851.3	1422.6	1192.9	1126.7	1077.9	946.2	1061.5	907.7	828.6	971.9	1061.9	991.8	921.5	1172.7	1134.0	1265.3
196	848.1	1518.2	1292.9	1223.4	1169.9	1046.4	1163.4	1012.4	935.8	1078.3	1168.9	1100.5	1030.5	1281.4	1241.2	1374.3
198	765.4	1431.2	1213.4	1136.8	1079.5	968.2	1087.9	944.4	877.4	1015.2	1108.2	1051.2	986.1	1230.7	1181.1	1327.7
200	686.6	1357.8	1126.8	1062.0	1013.0	882.1	998.0	845.5	768.8	911.1	1001.8	935.3	866.7	1123.0	1074.1	1210.0
202	657.7	1328.9	1096.3	1032.5	987.3	849.6	963.8	808.4	728.4	871.9	961.6	891.9	822.3	1072.8	1033.7	1165.9
204	791.5	1461.8	1236.2	1168.9	1114.0	989.6	1106.7	955.9	880.2	1022.2	1113.1	1046.4	977.2	1227.1	1185.5	1320.7
206	479.5	1149.5	914.7	852.8	812.0	668.1	781.8	626.9	550.6	692.2	783.2	721.0	655.8	900.8	855.7	997.3
208	643.5	1302.6	1092.1	1012.9	946.8	849.4	971.1	836.6	781.2	912.3	1007.1	963.4	904.8	1139.7	1080.0	1240.7
210	651.4	1317.9	1099.3	1025.0	967.0	854.1	974.0	831.6	767.5	903.7	997.2	944.5	881.9	1123.0	1070.1	1211.6
212	588.5	1258.9	1033.9	963.9	911.9	787.5	905.5	758.2	689.4	827.9	920.5	863.8	799.9	1043.0	993.3	1140.6
214	555.7	1225.9	998.4	931.1	882.7	751.7	868.4	718.4	646.8	786.5	878.6	819.5	754.9	999.0	951.3	1096.1
216	519.0	1189.1	964.9	894.3	842.1	718.7	837.3	692.3	627.5	763.6	857.1	805.8	744.5	1092.4	1047.6	1187.9
218	808.2	1471.0	1256.7	1180.1	1117.9	1012.4	1132.9	991.8	927.0	1063.8	1157.2	1102.2	1037.8	1281.4	1230.1	1378.9
220	836.5	1428.3	1260.3	1164.4	1076.6	1038.9	1161.8	1061.2	1035.3	1145.7	1241.5	1226.8	1181.1	1312.1	1312.1	1498.8
222	807.6	1459.7	1255.3	1173.3	1104.3	1014.3	1136.7	1004.9	949.0	1080.4	1175.2	1130.1	1070.0	1307.1	1248.1	1407.5
224	756.0	1411.9	1204.2	1123.8	1057.1	962.2	1084.2	949.9	893.1	1025.3	1119.9	1073.9	1013.4	1250.9	1192.8	1351.1
226	718.6	1367.9	1165.5	1082.3	1012.4	925.7	1048.4	919.7	869.1	997.3	1092.7	1053.2	996.1	1228.4	1165.4	1303.3
228	682.1	1295.9	1115.0	1022.8	941.0	861.3	1010.6	903.0	836.5	954.9	1049.1	1051.8	1016.3	1207.3	1117.4	1315.7
230	636.5	1205.2	1042.7	943.7	852.1	763.5	952.3	867.9	859.3	986.5	1082.5	1064.3	1017.7	1231.1	1153.6	1337.1
232	587.9	1209.6	1023.5	932.9	853.9	793.5	917.1	808.0	778.8	891.5	987.4	970.1	924.7	1136.3	1058.6	1242.5
234	635.0	1269.9	1076.7	989.1	913.9	842.0	965.6	847.9	809.6	929.2	1025.2	998.7	948.3	1169.8	1043.6	1212.9
236	593.7	1244.7	1040.6	957.9	889.6	808.6	925.6	796.6	750.0	875.4	971.0	936.5	882.7	1109.8	1034.6	1199.8
238	556.5	1192.7	998.1	910.9	836.7	763.5	887.0	770.8	735.6	852.8	948.8	925.8	877.8	1094.4	1020.6	1199.8
240	382.0	1047.7	809.0	751.0	716.6	563.1	674.6	517.7	441.1	582.4	673.5	614.1	551.5	793.2	746.1	891.0
242	511.5	1149.4	953.4	866.7	793.5	718.5	842.0	726.1	692.4	808.4	904.4	863.2	836.4	1050.9	976.1	1156.5

EXHIBIT 5.4 LATA-IO-LATA DISTANCES, Part 1
LATA-to-LATA Distances (Miles)

To LATA #	570	961	620	624	626	628	630	632	634	635	636	638	640	644	646	958
120	1866.0	1835.1	1073.1	1041.6	1142.7	1103.3	1288.4	1169.3	1021.0	1065.2	1263.6	1453.1	1267.8	1290.1	1416.0	1337.3
122	1603.4	1765.0	1060.3	1052.9	1143.4	1099.0	1267.4	1138.1	984.4	1034.2	1274.4	1463.4	1274.5	1259.9	1387.1	1305.4
124	1571.2	1715.7	951.3	926.0	1024.0	983.2	1165.6	1045.7	897.3	941.6	1148.2	1337.7	1166.1	1166.6	1292.5	1213.7
126	1528.5	1692.7	1009.7	1013.7	1098.6	1052.0	1212.4	1079.3	924.1	975.9	1233.8	1421.9	1222.7	1201.2	1326.5	1245.8
128	1508.0	1673.1	1081.9	1078.4	1167.2	1122.0	1287.2	1156.1	1001.6	1052.4	1299.6	1488.4	1295.7	1278.0	1323.0	1320.2
130	1577.7	1746.1	1073.3	1077.0	1162.3	1115.8	1275.4	1141.6	986.1	1038.4	1297.3	1485.5	1286.2	1263.5	1390.8	1307.8
920	1515.6	1682.2	1011.5	1019.9	1102.6	1055.3	1212.1	1077.4	921.6	974.3	1239.4	1427.0	1223.8	1199.2	1326.5	1243.3
132	1437.0	1598.7	967.3	992.9	1066.6	1016.4	1159.7	1019.7	862.5	918.2	1208.6	1369.9	1176.5	1140.9	1267.9	1183.5
133	1454.7	1619.3	950.9	964.6	1044.4	996.2	1149.8	1014.1	858.1	911.2	1182.9	1369.9	1157.3	1139.8	1263.2	1179.8
134	1490.0	1647.5	943.6	944.4	1030.5	984.6	1148.6	1017.9	843.8	914.1	1164.8	1353.1	1157.3	1139.8	1263.2	1179.8
136	1395.5	1543.3	819.1	821.9	906.3	860.1	1024.9	895.9	743.0	791.9	1041.6	1229.6	1032.8	1017.7	1144.8	1063.4
138	1374.5	1512.8	845.1	861.1	939.1	890.6	1044.5	910.0	754.5	806.8	1078.5	1265.1	1056.9	1031.9	1159.2	1076.2
140	1373.0	1511.0	865.7	870.8	978.5	930.2	1088.3	957.9	804.6	879.9	1104.7	1265.1	1056.9	1031.9	1159.2	1076.2
974	1356.3	1478.4	744.8	751.0	833.2	786.5	950.4	822.0	663.6	717.9	969.9	1157.4	958.4	943.8	1070.8	989.6
220	1372.0	1553.9	982.5	1026.4	1090.0	1037.1	1163.3	1017.7	860.2	919.1	1236.8	1416.6	1186.2	1137.2	1263.0	1177.3
222	1378.0	1552.5	943.7	978.8	1047.2	995.5	1130.9	988.4	830.8	880.0	1191.8	1375.5	1150.5	1109.0	1235.6	1150.5
224	1417.2	1588.9	959.0	985.7	1058.8	1008.4	1150.8	1010.6	853.4	909.2	1201.1	1386.3	1167.9	1131.8	1258.8	1174.3
226	1273.7	1433.3	836.4	884.2	946.0	893.0	1021.1	877.0	719.4	777.4	1093.2	1274.6	1042.8	997.2	1123.6	1038.3
228	1349.8	1525.8	930.8	971.4	1036.6	984.2	1114.7	970.7	813.1	871.1	1182.6	1365.1	1136.0	1090.8	1217.2	1131.8
230	1309.7	1373.0	756.2	809.3	867.6	814.0	939.6	795.5	637.9	695.8	1015.9	1196.1	961.7	915.7	1042.2	957.0
232	1364.7	1527.6	870.7	895.2	969.0	919.0	1065.3	927.3	770.6	825.0	1110.9	1296.2	1080.7	1048.8	1176.0	1092.1
234	1134.2	1292.9	663.8	748.3	797.2	742.4	859.8	696.5	556.6	615.5	947.7	1125.2	884.1	833.9	960.1	874.6
924	1192.8	1334.8	638.4	674.3	740.1	688.7	832.6	696.5	540.9	593.5	885.2	1068.4	847.7	818.4	945.7	862.6
236	1230.8	1412.1	873.9	937.1	988.7	937.4	1054.1	906.6	749.4	809.4	1141.1	1320.0	1079.7	1025.2	1150.4	1064.5
238	1260.9	1439.4	879.6	935.8	991.7	937.4	1003.7	852.7	695.7	745.5	1078.2	1256.5	1015.5	961.8	1087.3	1001.5
240	1215.3	1386.3	845.7	874.2	928.3	873.8	990.1	843.0	685.7	745.5	1112.9	1286.8	1034.5	986.6	1092.0	929.6
242	1291.3	1479.2	957.9	1018.5	1072.0	1017.1	1127.1	977.6	821.2	882.4	1222.3	1399.9	1155.1	1094.7	1218.9	1132.6
244	1042.4	1231.9	803.1	902.7	929.6	871.4	941.6	786.9	638.0	702.0	1084.3	1246.6	980.3	936.8	1015.8	929.6
246	1171.3	1354.0	842.1	915.9	960.6	904.4	1003.7	852.7	695.7	745.5	1112.9	1286.8	1034.5	986.6	1092.0	929.6
248	1178.8	1370.5	902.5	962.5	1023.4	966.6	1057.0	904.3	750.9	813.9	1176.5	1348.2	1090.7	1018.0	1139.7	1053.3
250	1087.0	1276.8	831.4	924.0	956.0	898.2	976.1	822.1	671.2	734.9	1110.3	1277.5	1013.0	933.6	1053.7	967.4
927	1126.7	1307.7	803.0	883.0	923.5	866.7	960.6	808.8	654.2	747.3	1110.4	1281.6	1023.9	952.3	1074.5	988.1
928	1135.2	1320.9	855.8	917.7	957.1	900.1	990.6	835.8	680.1	721.9	1074.0	1248.0	996.5	932.2	1056.1	969.8
929	1151.6	1329.9	803.4	877.1	921.7	865.5	966.3	815.6	650.1	721.9	1074.0	1248.0	996.5	932.2	1056.1	969.8
254	968.0	1162.0	684.6	766.5	811.3	753.0	826.0	672.1	521.3	585.1	966.0	1130.3	863.3	784.1	905.0	618.5
256	1079.0	1247.9	705.4	786.2	825.6	768.9	866.0	671.4	521.3	585.1	966.0	1130.3	863.3	784.1	905.0	618.5
932	976.9	1163.3	749.4	858.7	878.2	819.6	879.5	616.5	459.4	515.1	1033.1	1193.6	920.6	832.1	949.9	863.8
320	1101.0	1242.0	573.7	631.7	684.3	630.1	757.6	616.5	459.4	515.1	1033.1	1193.6	920.6	832.1	949.9	863.8
322	1129.1	1278.7	633.9	690.8	744.6	690.5	815.6	672.9	515.4	572.4	894.2	1006.7	748.5	683.9	808.5	722.4
324	985.6	1134.4	560.6	654.6	684.2	626.5	717.2	566.7	410.9	472.9	838.4	1033.9	794.4	749.0	875.7	790.9
325	1091.2	1237.3	592.9	656.7	706.0	651.1	771.9	628.3	470.8	528.2	856.7	1033.9	794.4	749.0	875.7	790.9
326	1034.2	1163.7	481.0	551.7	595.5	540.0	661.5	520.4	363.4	418.9	747.1	922.9	682.7	641.8	768.9	685.0
328	934.5	1071.3	516.7	625.2	644.1	585.7	662.0	509.7	355.9	419.2	799.0	962.3	696.7	645.0	748.6	662.3
922	869.3	1036.0	532.0	651.8	673.2	617.0	726.1	405.7	291.2	349.9	769.5	903.7	612.3	493.9	609.0	524.5
330	706.7	954.0	487.0	646.5	620.9	563.4	559.2	380.6	279.6	328.7	632.0	800.1	547.9	501.9	629.1	545.2
332	937.8	1048.4	354.2	455.2	477.5	419.7	523.3	359.9	242.1	279.6	632.0	800.1	547.9	501.9	629.1	545.2
334	924.5	1049.9	416.2	522.4	542.1	483.9	573.4	415.2	268.0	328.7	632.0	800.1	547.9	501.9	629.1	545.2
336	846.3	960.2	436.6	566.5	588.4	509.4	564.7	408.6	261.2	325.4	722.8	878.0	603.7	523.6	646.1	559.7
338	803.4	942.3	453.0	593.4	586.5	527.6	564.1	408.6	261.2	325.4	722.8	878.0	603.7	523.6	646.1	559.7
937	898.9	1040.7	484.5	599.4	613.4	554.7	625.7	472.9	359.9	419.2	799.0	962.3	696.7	645.0	748.6	662.3
938	784.5	912.5	407.4	555.0	541.4	482.8	513.1	357.6	218.6	282.1	693.7	839.9	557.4	465.6	585.5	499.1
340	1089.2	1209.2	488.4	640.7	659.5	540.7	680.0	544.7	390.0	441.4	744.2	924.1	696.0	666.6	793.9	711.4
342	1185.2	1241.1	300.4	224.0	331.1	302.3	521.7	458.0	377.7	376.6	446.2	635.9	498.8	356.9	666.5	606.3
344	1105.7	1214.4	427.7	460.4	524.8	474.3	632.3	508.2	361.8	404.1	669.6	852.9	640.5	629.2	755.5	676.3
346	1049.9	1161.6	407.5	463.7	514.8	461.2	602.1	470.7	319.3	366.7	664.2	843.3	616.1	592.5	719.6	638.4
348	1025.2	1126.5	348.9	410.4	456.9	402.9	545.3	417.2	269.5	313.0	607.2	785.3	557.9	538.6	665.3	585.2
350	1024.3	1089.9	202.0	246.9	295.5	244.2	418.6	320.7	217.0	226.6	443.7	624.1	416.8	373.0	563.6	482.5
352	1001.1	1031.2	72.2	138.0	139.7	87.5	291.5	245.1	230.0	194.2	291.8	468.1	273.1	330.3	436.3	379.2
354	929.4	946.4	167.8	287.2	291.6	233.4	357.7	238.9	121.9	138.0	446.5	613.3	370.6	357.7	462.3	405.6
356	963.1	1044.6	236.9	328.0	353.2	296.6	430.4	306.6	169.7	203.0	506.7	679.2	443.2	426.9	552.8	474.4
358	905.4	1001.8	285.5	402.5	412.5	285.5	450.5	309.2	153.4	207.3	567.4	731.6	475.4	430.9	558.2	475.0
360	886.1	966.0	208.5	343.1	336.6	279.7	373.1	237.4	91.6	133.3	493.3	659.9	396.1	359.2	486.3	405.1
362	597.5	745.9	510.8	686.2	640.4	586.2	537.2	333.7	318.4	365.5	780.5	895.9	598.3	465.0	560.9	481.2
364	644.3	921.0	208.1	362.5	341.9	283.2	347.1	203.3	49.0	102.5	494.8	646.8	377.3	325.0	452.3	369.3

EXHIBIT 5.4 LATR-TO-LATA DISTANCES, Part 1

To LATA #	648	650	652	960	654	LATA-TO-LATA	656	658	660	662	668	670	672	674	676	720
120	1904.8	1828.3	2231.0	2190.6	1768.4	1771.6	1786.8	2085.0	1993.0	2315.8	2306.6	2549.1	2498.7	2445.1	2220.1	2504.5
122	1997.6	1835.5	2233.6	2210.2	1759.2	1745.5	1756.1	2071.8	1949.0	2275.9	2259.9	2558.6	2513.2	2466.9	2239.9	2495.1
124	1870.7	1712.2	2113.6	2079.3	1647.0	1648.5	1663.4	1963.7	1869.4	2192.1	2183.1	2434.1	2385.5	2334.8	2108.9	2384.1
126	1956.1	1791.6	2186.9	2171.8	1708.0	1687.3	1696.1	2018.4	1884.1	2210.9	2193.9	2514.9	2471.9	2429.4	2201.5	2442.9
128	2022.6	1859.8	2256.9	2236.2	1780.8	1763.9	1773.5	2092.5	1963.5	2290.1	2273.6	2583.0	2538.4	2492.6	2265.9	2516.3
130	2019.6	1855.3	2250.7	2235.1	1771.6	1749.6	1757.9	2081.6	1943.8	2271.0	2252.9	2578.6	2535.5	2492.6	2264.8	2506.3
132	1926.1	1795.7	2189.8	2177.7	1709.2	1685.3	1693.3	2018.5	1878.6	2205.8	2187.7	2518.8	2476.7	2435.5	2207.4	2443.5
134	1903.5	1737.2	2130.0	2121.6	1660.9	1626.2	1631.3	1966.1	1808.2	2136.4	2115.0	2479.7	2441.1	2405.2	2176.4	2392.2
136	1887.3	1723.4	2119.6	2102.5	1642.4	1625.0	1635.7	1953.8	1828.1	2154.1	2139.1	2446.7	2403.2	2359.9	2151.3	2381.7
138	1798.4	1631.7	2024.2	2017.1	1542.2	1518.0	1514.2	1829.7	1710.7	2035.7	2022.8	2322.6	2279.6	2237.5	2009.5	2253.4
140	1637.9	1471.2	1864.2	1856.9	1383.7	1365.3	1376.0	1694.1	1572.7	1897.5	1885.2	2471.6	2433.2	2397.6	2046.9	2276.2
142	1691.4	1526.3	1921.4	1908.4	1443.6	1428.9	1440.4	1755.2	1638.6	1963.1	1951.2	2249.5	2207.2	2166.4	1938.1	2178.0
144	1947.0	1775.9	2158.7	2171.3	1667.1	1619.1	1620.3	1966.6	1784.6	2113.5	2087.4	2494.9	2460.2	2430.0	2200.9	2393.2
146	1906.0	1736.2	2128.5	2128.5	1633.6	1593.2	1596.7	1936.5	1768.8	2097.4	2074.3	2456.9	2420.2	2387.2	2158.2	2362.9
148	1918.2	1749.8	2138.7	2139.1	1652.2	1617.0	1622.0	1957.2	1798.5	2126.8	2105.3	2471.6	2433.2	2397.6	2168.8	2383.4
150	1802.9	1631.8	2015.2	2027.2	1524.5	1480.8	1483.7	1825.6	1655.5	1984.0	1961.2	2351.0	2316.1	2286.0	2056.9	2252.2
152	1894.5	1723.9	2108.3	2118.0	1618.1	1574.2	1576.8	1913.4	1746.2	2074.9	2050.8	2443.7	2408.1	2376.8	2147.7	2345.9
154	1723.2	1551.7	1934.1	1948.3	1443.1	1399.5	1402.9	1744.1	1577.0	1905.3	1883.8	2270.3	2236.0	2207.1	1977.9	2170.6
156	1828.5	1660.5	2050.5	2049.0	1363.8	1316.9	1319.7	1663.0	1493.2	1821.5	1800.2	2193.7	2161.0	2134.6	1905.5	2089.6
158	1649.4	1476.8	1856.4	1876.0	1376.0	1342.5	1342.8	1639.4	1503.3	1829.3	1814.6	2151.1	2113.5	2080.1	1851.1	2065.0
160	1599.0	1429.7	1818.1	1821.4	1332.4	1304.5	1312.8	1639.4	1503.3	1829.3	1814.6	2151.1	2113.5	2080.1	1851.1	2065.0
162	1839.3	1665.9	2042.1	2066.6	1547.3	1489.9	1498.8	1841.9	1647.1	1976.1	1948.3	2380.9	2349.8	2325.1	2096.1	2268.3
164	1845.2	1672.1	2051.7	2071.4	1558.2	1505.5	1505.8	1855.2	1668.3	1997.2	1970.9	2389.4	2356.9	2330.1	2101.0	2281.8
166	1781.3	1608.7	1987.6	2007.7	1494.3	1442.9	1443.8	1791.7	1609.3	1938.1	1913.2	2325.3	2292.8	2266.3	2037.2	2218.3
168	1755.0	1578.5	1938.5	1986.9	1431.1	1371.8	1382.4	1724.9	1624.1	1953.1	1923.5	2465.0	2433.9	2409.0	2180.0	2351.2
170	1805.8	1631.4	2003.4	2034.6	1507.0	1443.7	1441.0	1798.3	1594.4	1819.0	1785.3	2281.1	2257.1	2243.8	2016.0	2145.1
172	1863.8	1698.6	2056.6	2093.7	1558.9	1488.0	1482.9	1845.9	1627.2	1955.8	1923.1	2397.7	2370.6	2351.6	2123.0	2271.4
174	1787.4	1611.4	1974.4	2018.6	1475.8	1399.5	1393.1	1759.3	1534.0	1862.5	1829.3	2316.5	2291.5	2275.9	2047.8	2184.2
176	1942.1	1766.8	2133.4	2172.2	1635.3	1561.2	1554.9	1920.6	1693.5	2021.6	1986.6	2474.9	2448.4	2430.0	2201.5	2345.6
178	1765.2	1590.3	1960.4	1994.7	1463.4	1397.8	1394.7	1757.3	1547.2	1876.2	1846.9	2300.9	2272.8	2252.7	2024.0	2179.3
180	1797.0	1621.8	1990.2	2026.8	1492.7	1424.0	1419.8	1780.9	1568.1	1896.9	1866.1	2331.2	2303.8	2284.4	2056.2	2206.6
182	1767.3	1593.1	1965.9	1995.9	1469.9	1408.7	1406.8	1762.2	1563.5	1892.5	1864.6	2305.7	2278.2	2254.2	2025.4	2188.5
184	1637.9	1461.6	1824.5	1868.4	1326.0	1252.8	1248.1	1611.0	1397.6	1726.5	1697.2	2166.4	2141.5	2126.5	1898.6	2036.3
186	1668.2	1493.7	1865.6	1897.4	1369.5	1309.3	1308.2	1662.1	1469.0	1798.0	1772.2	2205.5	2176.5	2155.5	1926.8	2088.4
188	1695.0	1518.1	1874.4	1927.6	1375.2	1291.8	1283.7	1653.8	1420.5	1748.7	1714.9	2217.5	2195.2	2183.9	1956.6	2077.6
190	1598.9	1367.2	1750.2	1764.3	1260.3	1223.3	1229.5	1563.5	1414.9	1741.6	1725.3	2086.0	2051.5	2023.1	1793.9	1989.8
192	1599.1	127.3	1809.5	1824.7	1318.9	1278.5	1283.4	1520.8	1464.0	1791.5	1773.1	2145.7	2111.6	2083.4	1854.3	2047.3
194	1521.1	1346.0	1716.9	1750.9	1220.7	1163.1	1163.5	1514.1	1332.3	1660.8	1638.7	2056.9	2028.6	2008.8	1740.3	1940.6
196	1558.5	1366.1	1766.9	1784.8	1275.4	1233.6	1238.4	1576.6	1419.2	1746.6	1728.5	2103.6	2070.3	2043.5	1814.4	2003.1
198	1446.6	1274.1	1655.2	1673.2	1164.5	1127.5	1134.3	1467.3	1323.1	1649.1	1634.6	1991.7	1958.3	1931.6	1702.7	1893.6
200	1470.9	1295.1	1661.6	1702.0	1164.3	1101.7	1101.1	1458.4	1267.7	1596.3	1573.8	1902.7	1876.1	1859.4	1731.2	1881.0
202	1477.0	1300.3	1660.9	1703.2	1162.3	1090.6	1087.4	1447.6	1245.4	1574.3	1549.1	1903.1	1879.0	1865.8	1738.3	1873.2
204	1520.2	1346.6	1723.7	1748.1	1230.2	1183.1	1186.6	1528.8	1364.4	1692.0	1673.1	1961.8	1930.4	1906.5	1777.5	1955.5
206	1375.4	1197.6	1537.4	1610.1	1038.6	943.2	933.6	1307.7	1074.4	1403.3	1374.1	1881.7	1864.9	1862.9	1638.5	1729.9
208	1317.2	1143.1	1519.7	1546.0	1027.0	987.7	994.9	1328.1	1187.6	1512.5	1500.3	1857.8	1826.3	1804.2	1575.4	1754.6
210	1375.5	1200.5	1572.6	1605.4	1027.5	1027.5	1031.3	1374.0	1213.3	1540.0	1523.5	1912.1	1883.1	1863.3	1634.7	1800.6
212	1378.3	1201.6	1563.1	1610.6	1064.8	998.1	997.0	1352.5	1164.7	1493.1	1471.9	1905.0	1880.4	1867.1	1639.7	1778.5
214	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
216	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
218	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
220	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
222	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
224	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
226	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
228	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
230	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
232	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
234	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
236	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
238	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
240	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
242	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
244	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	1766.8
246	1435.9	1254.8	1593.6	1614.2	1059.5	983.5	979.7	1341.7	1138.0	1467.8	1444.0	1901.5	1879.4	1869.7	1643.1	

[illegible]

To LATA *	120	122	124	126	128	130	132	133	134	136	138	140	974	220	222
366	969.3	920.5	846.5	855.9	935.1	916.2	851.1	787.0	799.5	683.1	686.4	545.9	773.9	749.6	749.6
368	992.6	946.9	869.4	883.4	962.2	944.2	879.2	814.7	841.2	708.2	713.7	570.4	636.5	605.5	780.1
370	943.5	889.7	821.5	823.6	903.2	883.0	817.9	753.6	769.0	654.9	654.7	519.1	585.5	734.3	712.1
374	1020.7	957.1	897.6	901.0	980.6	960.3	895.2	825.6	846.4	732.0	732.1	595.8	662.1	809.1	788.2
376	1100.7	1052.9	977.7	988.3	1067.5	1048.4	983.3	916.1	932.0	815.3	818.6	677.9	744.1	901.6	879.5
376	968.8	910.0	847.7	842.1	922.2	900.4	835.3	771.0	789.7	678.5	674.4	544.6	610.7	742.6	723.9
377	1024.1	982.2	900.7	920.0	998.2	981.2	916.4	853.8	861.3	742.2	750.2	604.0	669.7	846.9	820.2
378	979.5	914.0	860.1	844.0	924.5	900.6	835.7	759.3	794.8	687.9	708.6	557.4	622.8	731.9	717.8
420	881.9	775.4	785.7	698.3	772.8	737.5	681.0	585.6	637.1	616.7	572.8	538.4	583.2	515.2	533.5
422	842.3	727.2	755.6	650.7	721.0	683.3	631.4	534.3	638.5	595.4	543.8	538.1	573.5	453.5	481.6
424	760.7	644.7	676.3	568.2	638.2	600.5	548.6	451.7	580.9	557.5	465.6	472.4	502.6	370.9	399.0
426	742.1	620.2	666.4	545.2	610.6	571.4	524.3	427.6	482.2	519.8	461.0	429.4	512.5	338.5	375.7
428	849.1	721.2	783.4	649.5	707.6	666.7	627.1	533.1	592.6	646.0	584.5	624.2	643.7	436.4	483.7
436	959.1	834.1	866.2	760.7	822.3	781.9	739.0	700.0	761.7	738.7	680.7	727.1	563.7	386.2	425.7
438	1045.9	938.6	949.2	861.5	935.3	899.3	843.8	747.9	840.9	779.1	736.5	694.6	643.7	436.4	483.7
440	1035.1	912.1	958.0	837.7	901.3	861.3	816.5	720.1	775.2	805.2	749.7	755.5	788.5	628.4	668.5
442	978.6	861.8	892.8	785.6	854.4	816.1	765.9	668.7	718.8	731.9	680.9	669.4	707.8	584.3	616.1
444	1158.2	1043.3	1068.9	966.8	1036.5	996.3	947.4	850.3	899.0	903.9	856.1	829.9	873.8	766.9	797.6
446	1089.5	956.5	978.6	879.7	950.6	913.1	860.6	763.8	811.1	865.0	785.6	738.1	762.0	683.9	711.1
448	1328.9	1220.1	1198.3	1098.9	1168.9	1130.9	1079.6	982.6	1030.7	1061.4	1019.7	952.0	998.5	899.6	975.9
450	1289.4	1175.5	1156.3	1031.8	1091.9	979.5	936.5	840.7	896.8	929.1	873.3	878.3	912.1	747.3	789.4
452	1156.3	1031.8	1081.1	958.1	1019.9	979.5	936.5	840.7	896.8	929.1	873.3	878.3	912.1	747.3	789.4
454	1215.9	1092.0	1139.2	1018.1	1080.4	1040.2	966.6	900.5	956.2	1016.6	985.4	930.5	966.4	807.7	849.1
456	1206.5	1081.0	1136.8	1009.1	1067.2	1026.3	986.8	892.3	950.7	1013.3	992.2	934.2	979.3	807.7	849.1
458	1260.4	1132.9	1190.5	1061.0	1119.0	1078.1	1038.7	944.3	1002.6	1065.2	1043.3	985.6	1029.6	848.1	894.2
460	1401.7	1270.1	1342.2	1202.0	1252.9	1211.5	1178.8	1087.9	1149.4	1214.1	1205.0	1144.2	1198.1	988.6	1040.4
939	1392.7	1264.3	1324.3	1193.1	1249.7	1208.6	1170.6	1076.7	1135.6	1198.5	1177.6	1131.5	1163.7	979.8	1027.0
952	1325.0	1199.2	1251.5	1126.3	1186.3	1145.6	1104.4	1009.0	1066.1	1127.6	1100.1	947.8	1082.6	914.3	958.2
953	1227.8	1110.5	1141.0	1034.5	1102.5	1063.8	1014.6	917.4	968.0	1024.3	977.8	906.6	949.5	831.3	864.9
462	892.0	815.0	776.8	742.1	822.5	795.7	731.6	649.6	668.7	698.6	601.1	582.4	542.7	613.8	605.1
464	970.9	895.1	854.9	822.4	903.8	876.0	812.0	729.8	749.0	778.5	678.6	480.6	619.8	556.7	585.0
466	847.0	763.2	735.3	686.9	766.8	740.2	677.0	591.7	649.4	559.0	534.2	447.3	506.0	454.4	545.4
468	1209.0	1127.2	1094.8	1052.8	1132.6	1103.3	1040.5	953.6	979.0	1013.1	998.5	798.5	860.9	904.4	905.8
470	1023.0	935.8	912.0	860.5	939.8	909.5	847.5	759.0	786.7	935.7	709.4	623.2	682.6	708.0	710.6
472	1015.4	916.9	911.5	840.1	917.1	883.6	824.6	731.4	767.3	811.8	701.7	639.5	693.1	687.9	680.4
474	915.3	816.2	812.5	739.4	816.4	783.1	723.9	630.9	666.6	711.4	639.1	546.0	597.3	568.9	580.0
956	817.4	714.5	718.7	637.5	713.6	679.5	621.2	527.2	565.3	612.7	548.1	467.4	512.9	463.3	475.9
476	1150.2	1050.3	1046.7	973.4	1043.8	1015.6	957.4	863.4	900.9	946.4	872.5	773.1	827.6	796.3	811.9
477	1081.5	986.1	975.1	909.6	987.3	954.5	894.7	802.4	836.4	878.9	799.8	695.9	752.1	741.3	751.9
478	1127.9	1023.3	1028.3	946.2	1020.9	985.5	929.1	833.7	874.7	923.1	856.1	764.4	815.7	761.8	781.5
480	271.2	331.1	179.7	335.4	362.9	382.9	354.7	399.6	337.3	277.0	232.2	287.7	242.1	492.0	428.7
482	1346.2	1252.4	1237.9	1176.0	1253.7	1220.8	1161.0	1068.7	1102.7	1144.5	1061.9	1031.9	1010.7	1005.7	1018.0
484	1400.9	1297.4	1299.3	1230.3	1295.1	1259.6	1203.3	1107.9	1148.7	1196.4	1125.6	1088.3	1081.4	1034.9	1055.7
486	1487.2	1404.4	1372.9	1329.5	1409.1	1376.0	1316.6	1228.4	1255.7	1291.0	1197.0	1175.5	1138.5	1174.8	1179.7
488	1523.6	1428.0	1416.0	1351.4	1428.5	1394.9	1335.9	1242.7	1278.4	1321.3	1240.1	1209.3	1176.8	1191.5	1191.5
490	1460.6	1368.8	1357.6	1281.7	1357.0	1321.9	1265.0	1170.0	1209.7	1256.5	1183.2	1147.4	1098.2	1117.9	1117.9
492	1478.5	1381.3	1372.1	1304.5	1381.3	1347.3	1288.8	1195.1	1231.7	1275.6	1198.5	1164.4	1147.0	1127.7	1143.6
520	1082.3	1022.0	961.4	953.3	1033.6	1010.9	945.9	871.3	881.7	902.1	791.8	658.2	724.3	845.9	830.6
521	1177.9	1125.3	1055.9	1054.8	1113.2	1048.0	975.3	893.8	963.8	1001.8	889.0	753.5	819.8	951.8	935.4
522	1276.4	1215.0	1155.3	1145.5	1225.9	1137.4	1060.6	1073.3	1095.3	985.7	979.4	852.2	918.3	1029.9	1018.4
524	1278.4	1231.4	1155.1	1166.6	1245.9	1126.5	1161.4	1092.9	1097.1	1110.5	993.7	856.1	922.3	1075.2	1055.3
526	1396.8	1328.4	1277.3	1256.9	1337.4	1311.5	1247.2	1166.0	1183.8	1210.2	1105.0	993.7	922.3	1075.2	1055.3
528	1324.7	1247.4	1208.3	1173.6	1253.9	1125.7	1162.4	1077.1	1100.1	1131.7	1033.2	974.5	1040.0	1127.0	1121.2
530	1335.2	1254.7	1220.0	1180.4	1260.3	1231.2	1168.3	1081.5	1106.6	1140.2	1044.4	921.9	985.1	1031.6	1033.7
532	1454.1	1404.6	1331.0	1338.5	1418.2	1397.7	1332.5	1261.2	1268.2	1283.8	1168.2	1031.1	1097.3	1236.3	1221.9
534	1332.7	1287.7	1209.3	1223.4	1302.5	1263.6	1218.5	1150.7	1154.3	1166.8	1049.3	911.4	977.4	1113.4	1113.4
536	1638.8	1478.4	1417.3	1408.8	1489.2	1465.4	1400.5	1322.9	1336.6	1356.7	1248.6	1114.4	1180.6	1289.3	1279.9
538	1531.5	1380.9	1311.4	1311.4	1391.8	1368.1	1303.2	1225.9	1239.2	1261.2	1151.2	1017.2	1083.3	1193.3	1183.1
540	2107.7	2051.3	1985.2	1982.4	2062.7	2039.4	1974.4	1897.1	1910.4	1931.2	1819.1	1615.6	1683.4	1749.8	1854.0
542	1868.7	1824.1	1767.3	1753.1	1833.6	1808.2	1743.7	1662.8	1680.2	1705.3	1597.6	1464.7	1622.5	1617.9	1617.9
544	1815.4	1756.3	1693.5	1686.9	1767.3	1743.5	1678.6	1600.6	1614.7	1636.5	1525.8	1391.0	1457.2	1565.6	1557.3

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EXHIBIT 5.4 LATR-TO-LATA DISTANCES, Part 2

To LATA *	224	226	228	230	232	234	236	238	240	242	244	246	248	250	252
366	775.6	636.6	729.7	555.8	697.0	472.6	645.7	660.4	597.7	728.4	534.0	601.9	651.8	569.9	728.2
368	805.4	667.4	760.7	586.3	725.6	503.4	678.4	692.6	629.6	761.3	568.5	635.3	685.7	603.3	762.2
370	739.5	598.8	691.4	518.7	662.9	435.0	604.2	620.0	557.8	686.4	488.2	559.0	607.5	523.8	683.4
374	816.2	674.8	767.0	595.1	740.1	511.3	622.6	694.2	625.6	758.6	551.9	630.3	675.8	589.5	750.5
376	906.5	766.2	858.8	686.0	820.8	602.4	770.4	787.0	732.1	852.0	644.6	723.9	769.4	682.6	843.8
378	753.3	610.5	701.9	531.8	679.6	448.0	609.0	627.1	566.2	689.8	480.8	561.0	605.4	518.6	679.7
379	844.5	707.8	801.3	626.6	763.7	544.1	721.0	734.5	671.3	804.1	612.8	678.5	729.6	647.5	806.2
380	749.5	604.8	694.2	528.4	679.9	445.4	595.0	615.6	556.8	673.7	453.8	544.1	583.4	493.7	655.5
420	576.4	445.8	503.5	407.1	546.7	361.4	468.0	413.5	320.3	428.7	185.3	320.3	314.2	227.0	359.7
422	525.8	409.3	451.3	368.3	510.7	362.4	478.8	364.5	349.3	362.3	149.4	274.0	248.0	178.0	278.1
424	443.2	329.9	368.7	316.0	430.7	301.7	417.5	282.5	271.1	280.2	83.1	193.4	165.5	99.5	202.1
426	420.0	324.3	346.0	327.2	421.2	329.9	444.3	267.1	271.4	245.4	125.4	189.6	159.0	116.1	190.6
428	526.7	449.5	455.9	460.1	541.6	464.4	579.0	387.0	400.9	345.8	253.8	319.6	259.0	250.7	335.3
430	469.8	376.3	396.3	377.9	473.0	376.3	491.6	318.7	323.2	293.0	163.4	241.5	190.2	163.3	191.7
432	385.9	303.0	313.2	317.7	395.6	332.7	443.9	208.1	255.8	207.2	150.0	175.5	112.6	126.1	105.1
434	605.1	479.9	531.1	447.2	581.5	406.6	515.5	442.2	418.3	448.6	215.8	349.4	333.5	253.4	369.3
436	546.8	448.3	524.0	442.6	546.7	430.8	546.6	358.4	392.7	370.7	212.0	311.8	265.9	224.9	268.9
438	598.5	488.8	574.9	471.9	589.6	447.4	561.6	404.5	429.9	427.7	233.3	352.2	317.1	256.1	332.2
440	636.1	543.9	623.2	540.4	641.1	528.0	643.7	452.4	489.4	457.1	309.2	408.1	358.1	322.6	349.9
442	712.6	609.8	665.3	570.0	710.7	519.6	620.8	541.5	547.8	584.7	347.8	482.7	469.6	387.6	504.2
444	660.4	546.4	585.9	523.9	647.8	492.2	604.2	464.9	486.4	535.4	285.5	491.7	432.0	385.4	430.4
446	755.2	634.2	709.4	603.0	735.8	560.9	667.5	558.0	593.2	674.3	369.9	501.4	562.1	493.3	579.2
448	1019.6	892.7	945.6	852.8	993.8	799.4	895.8	822.0	856.8	859.4	629.7	723.9	745.1	668.0	769.9
450	974.1	854.2	899.5	821.8	935.4	702.7	816.5	647.1	679.9	654.7	488.1	599.7	554.0	509.3	547.3
452	833.4	736.6	794.0	725.8	893.4	754.2	867.0	705.6	736.6	715.0	542.1	657.0	613.1	565.3	608.1
454	865.6	797.4	813.8	792.5	894.2	774.5	889.4	705.5	793.9	757.0	606.9	712.8	662.4	625.3	647.0
456	937.6	848.8	865.7	842.8	945.3	823.4	937.9	757.1	793.9	757.0	606.9	712.8	662.4	625.3	647.0
458	1082.2	1008.6	1013.6	1011.7	1101.4	1000.2	1115.8	914.1	957.5	901.6	781.6	875.7	818.5	794.5	790.2
460	1070.2	983.0	998.7	977.0	1079.8	956.3	1070.4	891.1	925.2	889.3	740.6	847.1	796.2	759.5	778.8
462	1002.0	907.4	929.3	896.4	1006.0	871.4	984.4	817.5	850.8	822.3	658.3	770.6	723.9	680.2	713.5
464	909.2	795.0	834.7	768.6	896.5	729.2	836.5	714.1	749.5	738.2	532.3	659.8	628.0	563.8	639.1
466	581.9	436.5	519.1	369.3	524.5	294.2	476.3	352.0	381.3	483.3	353.6	497.4	386.4	294.8	456.3
468	943.8	799.2	878.4	733.4	888.5	557.2	718.0	762.5	742.1	828.7	581.5	704.1	720.3	626.4	777.2
470	749.2	605.5	682.8	542.7	697.2	470.1	542.9	566.1	547.3	632.2	385.6	507.5	524.6	430.5	583.7
472	721.9	584.0	651.0	532.8	682.0	471.2	562.0	528.8	522.8	584.5	336.4	468.9	471.2	380.5	519.7
474	621.3	483.3	550.7	433.1	581.5	374.4	470.3	429.0	422.1	487.1	238.2	369.1	375.2	282.9	428.7
476	517.8	382.6	446.3	339.1	482.4	290.6	398.9	323.9	320.8	381.3	132.4	264.0	270.0	177.2	326.9
478	853.9	717.8	782.2	667.8	816.4	606.2	694.9	659.1	656.3	710.2	465.0	599.2	595.6	507.9	637.1
480	824.5	692.6	751.5	648.4	792.8	592.6	688.2	627.8	630.7	673.3	433.3	541.5	558.2	474.4	594.1
482	1059.1	919.5	988.7	863.4	1015.6	795.1	871.7	866.8	859.0	921.3	666.0	559.4	618.5	644.5	661.2
484	1098.7	966.3	1025.6	919.7	1066.1	859.7	948.4	901.9	904.4	945.6	707.5	806.8	807.2	717.8	850.4
486	1218.6	1074.9	1151.7	1010.7	1165.7	935.2	1033.4	1063.0	1016.8	1095.3	846.5	974.1	983.8	891.3	1034.1
488	1233.2	1095.1	1161.9	1040.6	1192.1	973.1	1059.2	1071.8	1034.1	1090.2	845.3	973.2	975.4	888.2	1013.7
490	1160.7	1027.0	1087.9	978.6	1126.3	916.7	964.2	997.9	965.3	1009.3	769.7	904.8	925.8	839.4	963.0
492	1185.6	1048.5	1114.0	995.5	1146.1	929.4	1002.5	1023.8	987.3	1040.7	796.7	931.0	925.8	839.4	963.0
494	861.5	717.5	807.5	640.1	790.0	556.7	582.0	709.3	670.4	788.0	565.6	658.3	696.8	606.4	768.1
496	965.5	822.1	912.7	744.0	892.3	660.3	679.3	815.7	776.1	894.5	671.5	764.9	803.3	712.6	874.2
498	1050.8	905.8	994.2	830.0	981.5	778.1	776.0	890.8	856.2	966.5	732.7	837.0	868.8	775.8	935.7
500	1083.3	941.9	1033.9	862.2	1006.6	778.5	785.8	941.4	898.8	1021.6	893.4	892.4	933.5	803.8	1005.5
502	1156.1	1010.5	1095.5	938.0	1092.0	856.9	896.4	985.8	957.4	1057.2	814.6	929.4	953.2	859.1	1014.6
504	1067.2	922.0	1003.1	853.9	1009.0	775.6	825.5	886.7	866.0	956.1	709.6	830.7	848.5	754.3	905.8
506	1071.7	927.1	1006.2	860.9	1016.0	784.1	841.7	891.5	870.0	955.2	707.4	831.3	845.9	752.5	900.8
508	1251.6	1108.5	1199.3	1030.0	1177.1	946.2	959.5	1101.7	1062.6	1179.9	951.8	1050.2	1086.1	994.1	1155.0
510	1141.2	1000.0	1092.1	920.2	1064.0	836.5	842.0	1000.0	957.2	1080.3	951.1	1050.2	1086.1	994.1	1155.0
512	1133.0	1167.7	1255.1	1092.7	1244.7	1010.1	1038.8	1149.0	1117.0	1222.8	1093.9	1121.2	1121.2	1027.3	1184.6
514	1216.0	1070.9	1158.6	995.5	1147.3	912.8	941.4	1053.4	1020.5	1127.9	990.1	1093.9	1121.2	1027.3	1184.6
516	1887.2	1741.9	1829.1	1666.9	1816.6	1564.4	1609.4	1721.6	1620.5	1793.8	1551.0	1665.7	1669.8	1595.6	1750.0
518	1852.9	1507.3	1592.0	1434.7	1588.3	1353.2	1388.1	1480.9	1453.9	1550.6	1305.1	1423.8	1444.0	1349.9	1501.6
520	1590.8	1445.4	1532.3	1370.7	1522.8	1288.1	1316.0	1424.9	1394.1	1497.3	1255.2	1369.0	1393.8	1299.7	1454.9

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 2

To LATA *	927	928	929	254	256	932	320	322	324	325	326	328	922	923	330	332
366	557.3	585.9	565.7	419.0	465.6	472.3	386.6	437.7	318.1	392.7	294.7	258.3	255.7	339.7	330	332
368	590.9	619.7	598.8	453.3	498.6	472.4	387.4	438.5	318.6	393.4	295.6	291.7	255.9	340.4	331	333
370	514.0	541.9	523.4	373.9	423.6	472.5	389.3	440.1	319.7	395.1	297.6	216.0	256.2	341.9	332	334
374	584.5	611.1	595.4	440.8	496.5	477.5	425.8	473.4	344.3	428.7	337.7	289.4	268.6	373.6	333	335
376	678.1	704.7	688.9	534.3	589.8	483.3	449.5	495.2	362.2	428.7	363.5	322.4	280.8	395.0	334	336
976	514.9	541.0	526.7	370.3	428.5	475.9	417.5	465.8	338.4	421.0	328.6	283.0	265.0	366.3	335	337
977	634.4	663.5	641.9	497.5	541.5	472.4	389.1	440.0	319.6	394.9	297.4	335.2	256.2	341.7	336	338
978	497.2	520.8	511.7	349.0	416.4	482.1	445.0	491.0	358.7	446.6	358.6	219.1	278.3	390.9	337	339
420	282.7	280.5	312.1	195.9	280.8	491.5	474.9	518.7	382.6	474.8	391.1	299.6	296.5	418.5	338	340
422	247.6	233.4	277.9	219.5	280.6	484.4	453.0	498.5	365.0	454.1	367.4	361.8	287.9	398.3	339	341
424	171.9	153.4	201.4	186.7	223.2	472.9	395.7	445.9	323.7	400.9	304.7	349.0	257.7	347.3	340	342
426	184.6	155.8	209.9	241.8	258.6	472.2	383.8	435.2	316.5	390.1	291.6	408.3	255.2	337.4	341	343
428	319.0	288.8	343.3	362.5	391.6	484.4	453.0	498.5	365.0	454.1	367.4	361.8	287.9	398.3	342	344
949	234.2	206.8	260.5	301.9	301.9	475.8	417.0	465.4	338.1	420.5	328.1	434.9	264.8	365.9	343	345
951	182.9	149.4	203.3	268.4	269.0	472.9	362.4	416.0	305.1	371.0	268.2	436.5	254.1	320.2	344	346
430	315.9	308.7	346.0	244.2	225.0	503.9	508.4	548.1	409.0	504.7	425.0	351.0	318.7	448.1	345	347
432	297.8	274.4	326.2	304.1	351.7	491.3	474.4	518.3	382.2	474.3	390.6	475.5	296.2	418.1	346	348
434	323.6	312.3	359.5	301.0	365.4	507.3	514.1	555.3	415.7	512.1	433.3	432.4	324.5	455.5	347	349
436	395.5	371.5	423.7	394.7	448.2	522.4	545.5	584.9	443.3	542.2	466.8	534.7	349.4	485.5	348	350
438	446.4	442.3	476.0	351.2	441.2	558.6	603.7	645.9	501.9	604.4	534.9	412.3	349.4	485.5	349	351
440	458.1	437.6	487.5	433.6	498.8	560.3	612.5	648.5	504.5	607.1	537.8	458.9	364.5	550.4	350	352
442	384.6	370.3	414.9	336.0	409.9	531.9	563.6	602.1	459.7	559.8	486.1	448.9	364.5	550.4	351	353
444	560.1	549.0	590.5	487.0	571.7	633.3	720.2	752.0	606.5	712.3	650.4	561.6	506.8	656.2	352	354
446	470.3	460.6	500.5	395.5	479.9	577.0	638.9	673.8	529.2	632.8	565.6	476.4	430.9	576.3	353	355
448	729.0	723.3	758.8	630.9	722.7	747.3	865.8	893.5	747.9	855.7	800.8	663.0	647.6	879.9	354	356
450	690.2	660.3	720.5	608.3	696.2	725.7	839.5	867.7	722.1	829.7	773.7	664.2	621.8	874.3	355	357
452	582.0	561.4	611.4	551.5	620.6	632.7	719.4	751.2	605.7	711.5	649.5	663.0	506.0	655.4	356	358
454	637.6	618.2	667.3	599.1	671.9	674.4	774.8	804.8	659.2	765.9	707.0	701.6	559.1	710.2	357	359
456	647.8	624.7	676.4	628.1	693.1	663.9	761.1	791.5	645.9	762.5	692.8	744.9	545.9	696.6	358	360
458	698.3	675.6	727.1	674.6	741.6	701.1	808.8	837.9	692.2	799.4	742.1	786.7	592.0	743.9	359	361
460	867.1	841.2	894.5	858.9	919.7	790.5	917.4	943.9	798.5	906.7	853.7	978.1	598.3	851.8	360	362
939	832.5	810.0	861.3	805.2	874.4	800.4	929.1	955.3	810.0	918.2	865.7	910.4	598.3	851.8	361	363
952	752.8	732.3	782.3	716.6	789.1	644.9	932.5	910.8	825.8	904.5	843.1	816.6	779.8	879.9	362	364
953	632.2	619.3	662.6	564.4	647.8	683.3	786.2	815.9	670.2	777.2	718.7	639.6	570.1	879.9	363	365
462	373.5	395.0	390.5	223.8	300.1	477.0	423.3	471.1	342.5	426.4	334.9	133.7	267.5	721.5	364	366
464	450.1	463.8	468.4	300.4	379.8	490.1	471.0	515.1	379.4	471.1	386.8	208.1	293.9	371.4	365	367
466	306.8	326.5	325.8	157.3	240.9	474.7	410.6	459.6	333.6	414.6	321.1	123.2	262.4	360.3	366	368
468	658.0	670.4	681.1	514.6	603.8	597.1	669.1	702.7	557.7	662.2	597.1	450.1	458.7	605.8	367	369
470	461.6	473.8	485.1	319.8	411.0	520.6	542.0	581.6	440.3	538.9	463.2	283.7	346.6	482.2	368	370
472	426.8	430.9	454.1	305.3	399.5	533.1	565.8	604.1	461.6	561.8	488.4	329.6	366.3	505.1	369	371
474	326.4	331.7	353.5	206.7	300.3	496.5	488.3	531.2	393.7	487.5	405.6	260.8	305.7	431.1	370	372
956	222.5	225.6	250.6	124.9	210.7	477.0	477.0	471.1	342.5	426.4	334.9	133.7	267.5	721.5	371	373
476	558.6	560.3	586.7	440.4	534.6	606.3	682.4	715.6	570.4	675.3	537.2	369.2	471.2	619.0	372	374
477	498.5	504.1	525.1	370.5	464.8	559.9	611.9	648.0	504.0	606.5	537.2	369.2	471.2	619.0	373	375
478	530.4	528.4	559.5	424.4	517.0	601.2	675.0	708.4	563.3	668.1	537.2	369.2	471.2	619.0	374	376
480	571.6	594.8	542.7	630.7	543.4	827.2	535.2	566.3	642.0	564.2	529.0	658.5	709.8	586.4	375	377
482	764.4	768.8	791.3	635.9	729.9	720.2	832.7	861.1	715.5	823.0	766.7	610.6	615.2	767.6	376	378
484	804.5	802.5	835.5	693.2	787.0	790.0	918.8	943.3	797.9	906.1	853.1	700.3	697.7	851.2	377	379
486	909.1	938.5	953.6	789.3	880.1	778.1	902.8	929.5	784.1	892.2	838.7	726.9	683.9	837.2	378	380
488	937.9	940.5	965.5	812.8	907.0	859.7	997.7	1022.5	877.6	966.1	935.8	788.1	777.5	931.7	379	381
490	866.0	864.9	894.7	751.3	845.4	832.2	966.0	991.5	846.4	954.8	903.5	749.8	746.2	900.2	380	382
492	890.3	892.0	918.1	767.5	861.3	830.6	964.2	989.7	844.6	953.0	901.6	749.8	744.5	898.4	381	383
520	611.4	634.7	626.0	462.9	530.4	497.1	489.9	532.6	429.5	527.3	450.2	344.3	336.9	470.6	382	384
521	718.0	741.3	732.4	569.5	636.4	514.7	529.9	570.2	429.5	527.3	450.2	344.3	336.9	470.6	383	385
522	789.7	809.9	807.0	640.0	714.9	567.5	624.1	659.6	515.4	618.4	550.0	520.8	417.5	561.8	384	386
524	845.9	870.5	858.8	696.7	761.1	723.3	749.3	780.6	645.0	544.0	468.8	350.9	350.9	487.3	385	387
526	882.3	896.7	902.5	733.9	816.0	655.3	749.3	780.6	645.0	544.0	468.8	350.9	350.9	487.3	386	388
528	784.3	797.6	806.7	639.1	726.4	648.5	740.7	771.9	626.3	735.9	671.7	560.6	526.4	685.4	387	389
530	785.5	787.2	808.8	642.5	731.6	666.6	754.6	794.9	649.3	755.9	696.4	573.3	549.2	700.1	388	390
532	1003.1	1025.4	1018.3	853.9	922.8	600.6	674.2	707.6	562.5	667.2	602.4	470.7	463.5	610.9	389	391
534	904.5	929.1	917.5	757.3	819.7	534.9	569.0	607.2	464.6	565.0	491.9	369.1	491.9	508.2	390	392
536	1046.6	1064.9	1065.4	897.2	975.4	639.2	806.4	835.6	689.9	797.1	739.6	784.0	589.7	741.5	391	393
538	951.4	970.3	963.7	801.8	879.0	645.7	737.0	768.2	622.6	728.8	667.8	686.6	672.8	741.5	392	394
540	1618.6	1635.4	1638.1	1469.6	1549.9	1036.0	1193.7	1215.4	1071.6	1180.6	1135.2	1357.8	972.3	1127.2	393	395
542	1377.0	1391.9	1398.0	1229.5	1312.7	953.3	1102.9	1128.0	981.7	1090.5	1043.0	1128.8	882.0	1036.7	394	396
544	1321.9	1339.0	1341.3	1172.9	1252.5	862.6	1001.0	1025.8	880.8	989.4	939.2	1062.0	780.8	935.0	395	397

EXHIBIT 5.4 LATR-TO-LATA DISTANCES, Part 2
LATR-TO-LATA Distances (miles)

To LATA #	362	364	366	368	370	374	376	378	420	422	424	426	428	949
366	238.1	96.6	0.0	34.5	46.7	58.3	132.5	129.2	484.5	572.3	583.3	648.0	745.4	665.0
368	237.0	97.5	1.3	0.0	81.0	61.6	108.6	156.4	517.6	606.2	583.3	682.4	779.4	699.3
370	234.4	99.4	4.1	81.0	0.0	77.4	167.5	155.4	438.6	525.8	536.7	601.5	698.7	618.3
374	187.4	141.2	57.6	61.6	77.4	0.0	93.6	111.0	482.6	575.1	594.2	660.4	749.7	673.0
376	161.0	169.6	89.8	108.6	167.5	93.6	0.0	195.8	567.0	661.9	684.7	751.3	836.8	762.1
976	197.4	131.3	45.9	105.1	44.1	71.2	164.1	53.4	415.2	506.1	523.4	589.4	680.4	602.7
977	234.7	99.1	3.8	44.3	125.2	87.7	88.0	194.3	560.2	649.6	661.9	726.7	823.1	743.3
978	165.8	164.2	83.8	156.4	95.1	111.0	195.8	0.0	372.4	466.2	489.8	556.6	641.1	566.4
420	136.5	200.1	123.0	517.6	438.6	482.6	567.0	0.0	0.0	100.0	158.1	220.0	272.2	209.8
422	157.3	173.9	94.6	606.2	525.8	575.1	661.9	82.8	100.0	0.0	158.1	220.0	272.2	209.8
424	225.6	106.3	13.9	617.7	536.7	594.2	684.7	489.8	158.1	0.0	158.1	220.0	272.2	209.8
426	242.2	93.8	4.4	682.4	601.5	660.4	751.3	556.6	158.1	0.0	158.1	220.0	272.2	209.8
428	157.3	173.9	94.6	606.2	525.8	575.1	661.9	82.8	100.0	0.0	158.1	220.0	272.2	209.8
949	198.0	130.8	45.2	699.3	618.3	673.0	836.8	194.3	560.2	649.6	661.9	726.7	823.1	743.3
951	274.8	76.7	39.8	716.8	636.2	697.5	789.3	595.8	267.7	361.1	372.4	448.5	546.1	466.2
430	113.2	237.3	162.5	560.3	482.4	522.3	604.0	602.2	51.8	92.2	169.2	221.7	246.7	199.4
432	136.9	199.5	122.4	698.4	618.3	666.0	751.3	556.6	158.1	0.0	158.1	220.0	272.2	209.8
434	109.0	246.4	172.0	656.3	577.7	619.4	701.5	508.6	139.5	84.9	158.9	213.9	261.1	142.1
436	99.8	282.8	210.0	760.6	682.3	722.7	803.4	611.8	244.3	175.7	226.7	219.9	232.0	168.1
438	121.0	355.7	284.9	554.9	485.4	505.9	574.0	582.1	164.0	226.1	305.4	354.9	352.7	326.1
440	122.8	358.8	288.1	756.3	680.9	713.1	788.1	796.5	256.8	218.2	286.2	247.9	216.4	207.6
442	100.8	303.6	231.5	648.4	572.4	606.7	684.0	689.2	149.6	137.1	217.9	247.9	216.4	207.6
444	216.5	477.4	408.6	693.8	628.2	641.2	701.2	537.9	291.5	316.2	398.6	430.3	379.0	388.1
446	142.4	388.3	318.1	631.1	561.0	582.4	650.1	658.6	199.7	229.8	312.6	350.3	319.3	312.4
448	363.4	633.2	565.7	715.8	666.7	656.2	692.6	741.9	447.2	497.2	579.6	619.5	577.3	580.8
450	336.4	605.3	537.6	754.5	697.7	789.3	743.5	784.5	415.5	448.3	530.8	562.9	505.4	520.0
452	215.7	476.5	407.6	837.6	766.3	789.3	856.5	871.0	365.5	340.3	410.1	415.1	315.8	364.0
454	270.7	536.3	468.0	859.4	791.0	808.6	871.0	895.6	408.4	393.1	465.9	475.1	377.1	423.5
456	256.9	521.5	453.2	921.6	850.5	873.0	939.3	959.3	446.2	412.7	476.9	473.3	359.8	421.3
458	305.1	572.6	504.7	953.3	884.0	903.0	966.1	989.9	489.5	461.1	527.0	524.8	411.7	472.8
460	416.2	687.6	620.4	1078.3	1006.3	1096.3	1157.5	1183.4	679.3	641.2	699.4	686.1	559.8	634.5
939	428.2	699.6	632.8	1058.9	993.3	1005.8	1062.2	1093.3	903.2	933.9	661.1	658.9	543.6	606.9
952	732.2	1031.8	935.3	982.0	896.4	908.9	966.0	996.5	806.2	509.8	580.9	585.1	479.1	533.7
953	282.2	548.5	480.3	762.5	699.5	708.3	763.6	807.7	368.5	385.8	427.9	426.0	426.0	447.5
462	190.4	338.2	54.1	264.3	184.9	234.0	323.9	307.4	253.7	342.3	360.8	427.9	516.4	439.0
464	140.0	195.4	118.0	240.5	172.3	194.9	274.7	279.0	292.9	389.3	420.4	487.7	564.0	493.0
466	205.9	323.8	36.0	329.8	249.0	303.7	394.5	373.6	195.6	277.2	290.5	356.8	449.7	370.1
468	168.3	354.1	352.0	380.3	354.1	318.7	394.5	397.3	423.3	520.1	579.4	643.1	677.6	630.5
470	100.2	278.8	205.9	345.7	345.7	293.8	360.7	380.9	239.3	339.1	389.6	455.3	507.5	449.0
472	101.2	306.1	234.0	452.2	383.3	403.4	473.1	489.5	160.1	253.1	318.9	379.1	410.5	363.1
474	125.4	216.1	140.1	446.2	369.1	407.5	489.6	487.8	80.9	180.7	231.0	296.0	352.7	289.8
956	190.4	338.2	54.1	486.6	407.8	460.8	549.8	532.4	354.2	120.2	137.8	205.2	290.9	212.4
476	180.5	436.2	366.8	514.7	459.1	457.7	507.6	545.1	281.5	360.7	435.5	490.1	493.3	464.8
477	122.4	358.2	287.5	440.3	380.3	385.6	443.9	473.3	235.5	327.3	393.5	454.1	479.7	436.7
478	173.7	428.1	358.6	555.5	494.2	500.9	557.4	588.6	401.3	316.0	394.7	444.8	437.2	415.3
480	914.6	633.8	692.9	689.8	645.3	629.3	659.8	713.6	550.6	522.3	603.8	647.6	614.3	611.5
482	329.4	598.0	530.3	575.0	545.6	513.4	526.3	591.4	493.1	574.1	648.6	711.1	670.0	676.0
484	415.6	686.9	619.8	706.7	668.7	645.4	666.9	727.0	575.3	584.6	665.7	711.1	680.1	676.0
486	401.2	672.2	604.9	604.5	602.9	547.4	523.7	605.9	530.9	763.3	832.5	891.8	901.0	832.5
488	498.6	771.6	704.9	728.3	708.9	687.6	664.3	738.6	623.5	735.7	813.5	845.9	845.9	833.7
490	466.1	738.5	671.7	735.2	709.1	673.6	686.7	752.2	611.6	649.2	729.7	775.9	745.6	741.2
492	464.3	736.6	669.8	706.0	681.5	644.7	648.4	719.1	593.5	612.5	763.3	813.6	793.6	782.2
520	124.3	217.8	142.0	144.9	145.5	85.0	110.5	113.7	114.3	469.0	597.0	664.3	740.9	670.5
521	102.7	264.8	191.3	199.3	234.4	158.5	101.5	188.2	220.8	567.3	700.5	767.9	740.9	670.5
522	131.0	371.9	301.4	309.6	336.2	264.0	212.0	299.3	301.7	606.2	751.0	817.9	874.8	815.4
524	99.7	285.0	212.2	285.8	343.9	267.2	178.5	256.0	350.1	701.7	834.4	901.7	973.8	906.3
526	245.6	509.3	440.8	447.4	466.5	398.2	351.6	438.8	417.3	660.5	834.4	901.7	973.8	906.3
528	266.7	499.6	431.0	432.2	428.4	374.0	358.0	436.6	358.0	765.0	820.6	885.6	924.3	875.6
530	260.5	525.3	456.9	461.7	452.9	402.4	391.8	411.6	458.3	617.7	708.0	771.5	802.2	757.9
532	172.9	427.2	357.7	461.7	515.0	437.6	353.4	432.8	506.7	637.9	701.3	763.6	786.1	747.5
534	101.9	309.8	237.8	341.1	401.6	325.2	236.2	308.8	830.4	930.4	973.7	1040.9	1099.2	1039.4
536	302.7	570.1	502.2	558.3	521.0	451.4	370.2	537.9	757.6	856.7	991.9	959.2	1029.5	963.1
538	293.0	495.6	426.9	464.0	499.3	424.7	358.4	564.8	840.2	938.7	992.6	1058.2	1098.9	1049.3
540	699.4	974.5	908.5	1117.5	1164.4	1087.6	1008.8	1445.8	1397.2	1492.8	1553.1	1617.1	1642.1	1603.7
542	606.5	880.9	814.6	911.0	947.8	873.3	803.8	889.7	1145.8	1239.9	1303.1	1365.7	1386.0	1349.2
544	502.0	775.0	708.4	829.3	872.0	795.9	720.9	804.8	1104.3	1200.9	1259.6	1323.9	1354.1	1311.2

EXHIBIT 5.4 LATA-TO-LATA DISTANCES (Miles), Part 2

To LATA #	951	430	432	434	436	438	440	442	444	446	448	450	452	454	456	458
366	682.3	527.8	664.7	623.5	727.9	526.2	725.0	616.8	666.9	602.2	696.2	731.6	808.2	831.4	892.4	924.9
368	716.8	560.3	698.4	656.3	760.6	554.9	756.3	648.4	693.8	631.1	715.8	754.5	837.6	859.4	921.6	953.3
370	636.2	482.4	618.3	577.7	682.3	485.4	680.9	572.4	628.2	561.0	666.7	697.7	766.3	791.0	850.5	884.0
374	697.5	522.3	666.0	619.4	722.7	505.9	713.1	606.7	641.2	582.4	656.2	697.2	789.3	808.6	873.0	903.0
376	789.3	604.0	751.4	701.5	803.4	574.0	788.1	684.0	741.2	650.1	723.5	743.5	856.5	871.0	939.3	966.1
378	626.3	456.6	597.5	553.1	657.1	450.4	651.3	543.7	590.9	526.5	623.9	656.8	732.7	755.4	816.8	849.0
379	761.1	602.2	741.6	698.6	802.6	592.1	796.5	689.2	728.7	668.6	731.9	784.5	875.4	895.6	959.3	989.9
380	595.8	411.4	556.3	508.6	611.8	398.5	602.7	495.9	537.9	474.8	571.6	603.5	681.4	703.1	765.4	796.9
420	267.7	51.8	184.7	139.5	244.3	164.0	256.8	149.6	291.5	199.7	447.2	415.5	365.5	408.4	446.2	489.5
422	178.0	92.2	139.1	84.9	175.7	226.1	218.2	137.1	316.2	229.8	497.2	448.3	340.3	393.1	412.7	461.1
424	111.8	169.2	129.2	158.9	228.7	305.4	286.2	217.9	398.6	312.6	579.6	530.8	410.1	465.9	476.9	527.0
426	48.5	221.7	126.9	183.1	219.9	354.9	293.0	247.9	430.3	350.3	619.5	563.9	415.1	474.1	475.8	524.8
428	146.5	246.7	90.4	160.1	123.0	352.7	207.2	216.4	379.0	319.3	577.3	505.4	315.8	377.1	359.8	411.7
429	86.9	199.4	77.8	142.1	168.1	326.1	242.9	207.6	388.1	312.4	580.8	520.0	364.0	423.5	421.3	472.8
431	0.0	270.2	164.6	227.2	250.3	403.1	328.3	292.6	474.1	396.2	665.3	608.3	447.8	507.9	500.7	552.6
432	270.2	0.0	156.4	97.5	200.5	136.2	205.9	97.9	247.3	155.9	414.6	375.1	131.7	357.1	394.4	437.7
433	164.6	156.4	0.0	73.4	97.9	266.3	166.1	136.2	312.8	241.8	507.8	444.0	288.7	347.3	350.3	401.2
434	73.4	73.4	0.0	0.0	104.8	193.3	133.6	65.5	247.3	170.5	438.7	379.8	255.4	308.6	328.3	376.3
436	250.3	200.5	97.5	104.8	0.0	265.4	84.3	127.1	261.3	76.5	459.8	384.3	197.6	258.2	253.6	304.9
438	403.1	305.9	166.1	133.6	84.3	223.0	0.0	109.4	183.3	156.9	438.7	379.8	255.4	308.6	328.3	376.3
440	328.3	205.9	166.1	133.6	84.3	223.0	0.0	109.4	183.3	156.9	438.7	379.8	255.4	308.6	328.3	376.3
442	292.6	97.9	136.2	65.5	127.1	139.9	133.6	65.5	247.3	170.5	438.7	379.8	255.4	308.6	328.3	376.3
444	474.1	247.9	312.8	247.3	261.3	403.1	328.3	292.6	474.1	396.2	665.3	608.3	447.8	507.9	500.7	552.6
446	396.2	155.9	241.8	170.5	214.8	76.5	156.9	105.6	91.8	0.0	269.2	220.0	206.9	231.0	290.7	325.1
448	665.3	414.6	507.8	438.7	459.8	258.3	301.5	315.3	132.7	230.0	94.7	203.3	332.2	297.9	374.4	420.8
450	606.3	375.1	444.0	379.8	384.3	258.3	301.5	315.3	132.7	230.0	94.7	203.3	332.2	297.9	374.4	420.8
452	447.8	375.1	444.0	379.8	384.3	258.3	301.5	315.3	132.7	230.0	94.7	203.3	332.2	297.9	374.4	420.8
454	507.9	357.1	437.7	376.3	304.9	592.9	425.7	242.8	456.3	517.4	528.4	442.9	333.3	254.0	185.6	134.3
456	552.6	437.7	401.2	376.3	304.9	592.9	425.7	242.8	456.3	517.4	528.4	442.9	333.3	254.0	185.6	134.3
458	706.1	627.5	570.4	558.0	472.6	592.9	425.7	242.8	456.3	517.4	528.4	442.9	333.3	254.0	185.6	134.3
460	685.9	535.6	535.6	509.0	439.1	510.1	376.0	469.6	365.3	437.7	415.3	333.3	254.0	185.6	134.3	134.3
462	616.2	474.3	459.3	425.1	366.0	413.7	294.8	380.7	268.3	342.0	333.3	254.0	185.6	134.3	134.3	134.3
464	534.4	322.8	370.2	311.0	303.6	227.5	219.8	249.2	78.4	169.0	175.3	245.2	157.0	129.0	217.7	217.7
466	529.4	329.4	477.5	426.9	529.2	314.6	518.2	411.9	455.9	390.7	503.3	527.9	597.1	619.7	681.1	713.2
468	690.5	433.2	587.5	518.9	601.4	336.6	556.4	474.7	418.4	400.2	362.8	426.1	588.0	586.2	663.9	679.9
470	501.4	261.7	417.6	356.7	452.9	213.5	429.2	328.6	348.1	289.8	394.5	416.6	496.6	514.8	580.0	609.3
472	427.2	165.2	320.2	253.7	344.6	103.7	316.8	218.5	246.4	179.1	335.9	335.5	385.9	407.8	469.8	501.2
474	342.6	114.8	264.3	212.1	315.2	154.2	313.0	203.8	301.7	215.7	425.9	411.5	408.2	442.8	491.7	530.6
476	248.3	119.8	213.3	189.2	291.0	231.0	317.2	214.4	362.5	270.8	513.7	485.6	431.1	476.4	510.0	554.9
478	502.3	237.6	389.9	320.6	404.4	142.3	365.2	277.3	257.3	213.5	297.7	317.8	310.9	315.9	389.5	427.3
480	694.4	435.9	540.8	469.8	499.5	300.8	422.2	404.6	238.9	299.3	53.2	147.3	382.2	350.1	432.5	427.5
482	752.1	482.0	616.8	543.4	599.1	351.5	532.9	464.3	357.8	384.5	217.9	305.6	521.9	500.4	583.2	584.9
484	758.2	497.0	605.9	534.5	565.5	361.1	488.0	469.8	304.8	364.2	112.2	205.9	444.5	409.0	490.6	481.7
486	940.2	671.6	814.8	741.8	803.9	548.6	739.8	685.6	565.5	569.0	410.8	503.8	726.3	703.8	786.7	784.7
488	912.6	644.6	767.4	694.6	734.9	508.6	659.9	631.6	476.7	526.8	287.9	381.1	620.1	583.7	664.6	652.8
490	823.2	560.7	671.4	599.9	630.8	424.6	552.9	535.3	369.9	429.6	174.4	265.3	505.2	466.7	547.1	534.6
492	861.5	594.2	715.5	642.7	682.5	458.8	607.6	579.5	424.5	474.6	237.2	331.1	569.3	534.1	615.5	605.4
494	705.0	502.6	653.6	600.0	700.3	464.9	681.2	578.7	590.7	540.8	596.7	634.6	746.8	760.6	829.3	855.7
496	809.4	597.4	751.0	694.1	791.7	545.1	786.0	667.5	658.6	619.0	624.9	684.7	821.5	829.2	902.1	924.4
498	823.2	628.4	784.7	721.6	812.8	563.3	776.1	686.0	646.8	622.2	580.1	651.2	815.5	815.1	892.4	908.8
500	942.8	731.2	885.3	827.6	924.3	673.9	895.9	799.3	779.7	746.3	725.1	793.3	945.7	949.6	1024.8	1044.2
502	932.3	679.4	834.1	765.6	846.7	581.3	797.7	720.5	645.6	640.8	538.1	621.4	816.2	805.3	886.5	895.0
504	819.0	559.7	712.6	642.7	720.6	455.4	669.7	595.1	516.6	512.9	417.0	496.7	687.2	677.1	758.0	767.6
506	811.5	548.4	699.1	628.1	702.3	438.1	648.2	578.0	490.0	491.8	382.0	463.7	660.2	647.7	729.2	737.1
508	1084.6	852.7	1009.1	945.6	1035.5	773.8	995.7	908.5	856.6	840.2	762.6	843.5	1027.1	1021.1	1100.8	1112.8
510	1104.6	853.9	1008.7	940.2	1020.8	755.4	970.4	894.8	813.7	795.6	760.3	832.2	992.7	984.4	1070.8	1088.5
512	1014.1	768.2	924.1	857.2	941.4	768.6	895.3	814.7	746.5	738.5	640.1	723.8	917.3	907.2	988.2	997.3
514	1684.6	1403.7	1553.7	1482.1	1550.1	1290.0	1487.7	1429.1	1312.9	1335.7	1145.1	1239.8	1472.6	1442.9	1516.7	1542.9
516	1413.6	1149.3	1298.2	1226.1	1292.1	1033.4	1226.8	1172.0	1053.5	1077.5	886.3	981.0	1213.2	1164.0	1266.4	1268.8
518	1371.0	1112.9	1264.9	1194.2	1266.8	1003.8	1208.5	1143.6	1039.0	1053.9	885.0	978.9	1203.8	1179.6	1262.5	1259.4

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 2
LATA-to-LATA Distances (Miles)

To LATA #	460	939	952	953	462	464	466	468	470	472	474	477	478	480
366	1119.0	1032.2	935.3	736.9	230.9	211.7	295.7	369.5	319.3	423.7	414.0	415.6	530.4	672.2
368	1147.2	1058.9	962.0	762.5	264.3	240.5	329.8	380.3	345.7	452.2	446.2	440.3	555.5	689.8
370	1078.3	993.3	896.4	699.5	184.9	172.3	249.0	304.1	282.4	363.3	369.1	380.3	494.2	645.3
374	1036.3	1005.8	908.9	708.3	234.0	194.9	303.7	318.7	293.8	403.4	407.5	385.6	500.9	629.3
376	1157.5	1062.2	968.0	763.6	323.9	274.7	394.5	335.9	360.7	473.1	489.6	443.9	557.4	659.8
976	1043.1	956.2	859.2	660.9	164.0	135.8	232.9	310.5	243.4	347.8	342.1	340.1	454.8	601.9
977	1183.4	1093.3	996.5	795.9	373.6	279.0	373.3	380.9	380.9	489.5	487.8	473.3	588.6	713.6
978	990.8	903.2	806.2	607.7	129.6	84.7	200.9	268.5	190.1	295.8	296.6	286.7	401.3	550.6
420	679.3	616.6	525.4	368.5	253.7	292.9	195.6	423.3	239.3	160.1	80.9	235.5	248.1	463.7
422	641.2	593.9	509.8	385.8	342.3	369.3	270.5	520.1	339.1	253.1	180.7	327.3	316.0	522.3
424	699.4	661.1	580.9	467.1	360.8	420.4	297.4	579.4	389.6	318.3	231.0	393.6	394.7	603.8
426	686.1	658.9	585.1	492.9	427.5	487.7	356.8	643.1	455.3	379.1	296.0	454.1	444.8	647.6
428	559.8	543.6	479.1	426.0	516.4	564.0	449.7	677.6	507.6	410.5	352.7	479.7	437.2	614.3
949	634.5	606.9	533.7	447.5	439.0	493.0	370.1	630.5	449.0	363.1	289.8	436.7	415.3	611.5
951	706.1	685.9	616.2	534.4	466.2	529.4	395.1	690.5	501.4	427.2	342.6	538.7	493.0	694.4
430	627.5	565.1	474.3	322.8	298.1	329.4	244.0	433.2	261.7	165.2	114.8	248.3	225.5	455.9
432	570.4	535.6	459.3	370.2	434.2	477.5	370.1	587.5	417.6	320.2	264.3	407.0	389.9	540.8
434	558.0	509.0	425.1	311.0	392.9	426.9	334.7	518.9	356.7	253.7	212.1	320.6	279.7	469.8
436	472.6	439.1	366.0	249.2	497.5	529.2	439.4	601.4	452.9	344.6	315.2	404.6	340.3	499.5
438	592.9	510.1	413.7	227.5	317.4	314.6	290.0	336.6	213.5	102.7	154.2	142.3	69.9	300.8
440	425.7	376.0	294.8	219.6	499.1	516.2	449.2	556.4	429.2	316.8	313.0	365.2	283.4	422.2
442	529.7	469.6	380.7	249.2	389.9	411.9	340.0	474.7	328.6	218.5	203.8	277.3	221.1	404.8
444	456.3	365.3	268.3	78.4	466.1	439.8	345.4	418.4	348.1	246.4	301.7	257.3	145.2	238.9
446	517.4	437.7	342.0	169.0	369.9	356.4	356.4	400.2	289.8	179.1	215.7	213.5	127.1	299.3
448	528.4	415.3	335.1	175.3	542.8	503.3	541.4	362.8	394.5	335.9	425.9	213.5	127.1	299.3
450	412.9	333.3	245.2	84.8	554.6	527.9	541.0	426.1	416.6	335.5	411.5	297.7	207.7	347.3
452	315.0	254.0	171.0	157.0	590.8	597.1	549.2	588.0	496.6	385.9	408.2	415.6	310.9	382.2
454	287.8	208.9	127.5	129.0	620.8	619.7	584.5	586.2	514.8	407.8	442.8	427.1	315.9	350.1
456	233.2	185.6	124.2	211.7	674.9	681.1	632.4	663.9	609.3	469.8	491.7	469.1	389.5	432.5
458	134.4	77.9	77.9	217.7	711.5	713.2	672.0	679.9	679.9	501.2	530.6	522.3	411.1	427.5
939	116.4	0.0	97.0	298.6	827.2	821.2	792.9	757.0	713.3	610.5	724.0	713.6	600.5	560.4
952	196.2	97.0	0.0	202.7	731.0	724.2	688.0	664.2	616.3	513.8	556.6	620.4	505.5	466.6
953	398.0	298.6	202.7	0.0	541.7	527.2	517.5	464.3	320.8	320.8	380.0	523.9	408.9	365.8
462	905.7	827.2	731.0	541.7	0.0	80.3	176.8	196.6	159.6	105.8	0.0	172.4	218.5	433.5
464	907.3	821.2	724.2	527.2	0.0	143.3	242.4	242.4	176.6	206.8	214.9	245.3	347.0	425.4
466	885.1	792.9	698.0	517.5	71.3	143.3	0.0	364.0	111.3	212.0	214.9	210.2	322.7	487.4
468	861.6	757.0	664.2	464.3	318.2	242.4	0.0	268.0	100.7	206.8	141.7	251.5	336.9	539.3
470	802.5	713.3	616.3	417.5	153.1	111.3	176.8	196.6	159.6	105.8	0.0	172.4	218.5	382.0
472	695.3	610.5	513.8	320.8	221.2	212.0	206.8	196.6	159.6	105.8	0.0	172.4	218.5	382.0
474	724.0	651.3	556.6	380.0	186.1	214.9	141.7	268.0	159.6	100.7	0.0	172.4	218.5	382.0
956	742.4	683.8	593.8	439.6	226.7	282.7	158.8	451.0	256.8	204.9	0.0	172.4	218.5	382.0
476	654.5	555.4	459.9	257.3	329.4	291.7	332.6	215.9	181.5	135.2	235.0	336.2	310.5	433.5
477	713.6	620.4	523.7	322.7	245.3	210.2	251.5	198.3	98.9	75.4	172.4	84.1	63.5	206.7
478	600.5	565.5	408.9	207.4	347.0	322.7	336.9	278.4	211.8	130.2	218.5	115.3	115.3	289.5
480	580.4	466.6	385.8	225.4	533.7	487.4	539.3	325.9	382.0	926.9	833.8	1060.0	1052.1	216.8
482	746.1	633.2	549.7	371.5	347.3	280.2	412.6	328.8	328.8	926.9	833.8	1060.0	1052.1	216.8
484	623.9	508.3	433.8	287.5	571.8	518.8	583.9	331.2	418.7	388.5	486.7	583.7	263.7	167.5
486	934.6	819.2	742.5	575.6	596.1	518.8	641.6	278.2	469.6	514.4	608.6	442.4	274.2	66.0
488	782.2	665.8	599.6	463.1	654.6	587.3	355.3	355.3	507.1	511.4	612.1	419.7	464.7	357.6
490	666.1	549.7	481.6	348.7	619.1	561.2	636.2	355.1	466.4	446.0	545.5	380.3	419.7	239.4
492	740.4	624.1	554.5	412.3	616.5	552.1	641.7	327.7	466.8	464.4	565.1	391.6	336.6	131.4
520	1047.0	951.8	855.6	653.2	241.1	177.5	312.0	238.3	252.3	365.0	389.6	397.6	369.0	187.8
521	1112.0	1011.5	916.8	714.4	280.2	412.6	539.3	325.9	382.0	926.9	833.8	1060.0	1052.1	216.8
522	1089.7	982.0	892.0	693.0	416.5	340.2	483.4	228.9	367.4	468.8	525.6	406.2	446.9	556.3
524	1228.5	1124.5	1031.5	830.6	478.8	414.1	549.8	367.6	471.5	581.0	621.2	532.8	504.8	536.8
526	1064.2	952.7	866.6	677.6	516.4	436.3	576.9	246.8	431.4	514.3	589.7	451.7	445.0	682.8
528	939.5	829.4	741.5	549.9	433.2	365.4	491.6	127.9	324.1	394.8	477.4	322.7	386.6	369.8
530	906.6	795.7	708.8	519.8	443.3	365.4	491.6	127.9	324.1	394.8	477.4	322.7	386.6	369.8
532	1286.3	1176.1	1088.3	895.2	630.4	557.9	699.7	440.5	591.9	692.3	749.8	636.2	364.8	333.9
534	1270.5	1164.7	1072.8	873.3	537.1	471.5	608.1	409.0	525.3	633.4	676.9	621.6	681.8	713.8
536	1218.2	1104.4	1022.3	840.2	421.4	339.9	739.9	421.4	525.3	633.4	676.9	621.6	681.8	713.8
538	1166.6	1055.0	969.0	779.8	579.5	501.5	644.6	340.1	513.3	604.0	762.9	619.6	681.8	713.8
540	1843.6	1527.5	1464.4	1317.2	1249.3	1170.1	1312.3	974.1	1166.4	1239.6	1322.6	1166.1	1209.9	590.2
542	1389.9	1273.5	1207.9	1057.9	1013.2	933.1	1073.0	724.5	919.4	987.0	1073.0	912.7	952.1	833.9
544	1401.8	1285.5	1213.9	1051.5	952.5	873.3	1015.6	681.0	871.3	948.1	1026.5	875.6	927.1	831.9

T-0 LATA #	482	484	486	488	490	492	520	521	522	524	526	528	530	532	534	536
366	563.6	691.8	605.0	721.4	722.9	696.9	142.0	213.4	321.0	311.0	456.2	431.2	451.7	485.2	367.5	536
368	575.0	706.7	604.5	728.3	735.2	706.0	144.9	199.3	309.6	285.8	447.4	432.4	461.7	461.7	341.1	575.5
370	545.6	668.7	602.9	708.9	703.1	681.5	145.5	234.4	336.2	343.9	466.5	428.4	452.9	515.0	401.6	558.3
374	513.4	547.4	673.6	667.6	673.6	644.7	85.0	158.5	264.0	267.2	398.2	374.0	402.4	437.6	325.2	596.1
376	526.3	666.9	523.7	664.3	666.7	648.4	110.5	101.5	212.0	178.5	351.6	350.0	391.8	353.4	325.2	521.0
378	501.6	624.7	562.7	655.5	659.0	637.7	113.7	212.8	307.7	332.7	433.4	388.4	411.6	498.3	391.2	451.4
380	591.4	727.0	605.9	738.6	752.2	719.1	159.1	188.2	299.3	256.0	438.8	436.6	468.3	432.8	308.8	537.9
382	456.0	575.3	530.9	623.5	611.6	593.5	114.3	220.8	301.7	350.1	417.3	350.0	377.8	506.7	408.7	564.8
384	493.1	522.3	674.4	661.6	584.5	612.5	469.0	667.3	606.2	701.7	666.9	551.6	637.9	930.4	757.6	936.7
386	574.1	584.8	763.3	735.7	729.2	763.3	597.0	700.5	751.0	834.4	820.6	708.0	701.3	973.7	891.9	982.6
388	648.6	665.7	832.5	813.5	775.9	813.6	664.3	767.9	874.8	901.7	865.6	647.7	637.9	1040.9	959.2	1058.2
390	703.6	711.1	891.8	864.5	745.6	793.6	740.9	839.5	874.8	973.8	924.3	802.2	788.1	1099.2	1029.5	1096.9
392	700.7	680.1	901.0	845.9	745.6	793.6	740.9	839.5	874.8	973.8	924.3	802.2	788.1	1099.2	1029.5	1096.9
394	677.4	676.0	870.4	833.7	741.2	782.2	670.5	771.9	815.4	906.3	875.6	757.9	747.5	1049.3	977.5	1049.3
396	752.1	758.2	940.2	912.6	823.2	861.5	705.0	809.4	862.2	942.8	932.3	819.0	811.5	1084.6	1000.6	1104.4
398	482.0	497.0	671.6	644.6	560.7	594.2	502.6	597.4	628.2	731.2	679.4	559.7	548.4	852.7	786.0	853.8
400	616.8	605.9	814.8	767.4	715.5	653.6	653.6	751.0	784.7	885.3	834.1	712.6	699.1	1009.1	940.6	1008.7
402	543.4	534.5	741.8	694.6	599.9	642.7	600.0	694.1	721.6	827.6	765.6	643.7	628.1	945.6	861.9	940.2
404	599.1	565.5	803.9	734.9	630.8	682.5	700.3	791.7	812.8	924.3	846.7	720.6	702.3	1035.5	977.5	1020.8
406	351.5	361.1	548.6	509.6	424.6	458.6	464.9	545.1	553.3	673.7	581.3	455.4	436.1	773.8	724.1	755.4
408	532.9	488.0	739.8	659.9	552.9	607.6	681.2	766.0	776.1	895.9	797.7	663.7	648.2	995.7	946.9	970.4
410	484.3	469.8	685.6	531.6	535.3	579.5	578.7	667.5	686.0	799.3	720.5	595.1	578.0	856.6	825.2	894.8
412	357.8	304.8	565.5	476.7	359.9	424.5	590.7	658.6	646.8	779.7	645.6	515.6	490.0	813.7	851.9	813.6
414	384.5	364.2	589.0	526.8	429.6	474.6	540.8	619.0	622.2	746.3	640.8	512.9	491.8	840.2	795.6	813.6
416	217.9	112.2	410.8	287.9	174.4	237.2	586.7	624.9	580.1	725.1	538.1	417.0	382.0	762.6	760.3	689.8
418	305.6	205.9	503.8	381.1	265.3	331.1	634.6	684.7	651.2	793.3	621.4	496.7	463.7	843.5	832.2	776.1
420	521.9	445.5	728.3	620.1	505.2	563.3	746.8	821.5	815.5	945.7	816.2	687.2	660.2	1027.1	992.7	983.6
422	384.5	409.6	703.8	583.7	466.7	534.1	629.3	829.2	815.1	949.6	806.5	677.1	647.7	1021.1	994.4	968.9
424	583.2	490.6	786.7	664.6	547.1	615.5	829.3	902.1	892.4	1024.8	886.5	767.6	737.1	1112.8	1088.5	1051.0
426	584.9	481.7	784.7	652.8	534.6	605.4	855.7	924.4	908.8	1044.2	895.0	767.6	737.1	1286.3	1270.5	1218.2
428	746.1	623.9	934.6	782.2	666.1	740.4	1047.0	1112.0	1089.7	1228.5	1084.2	938.5	906.6	1176.1	1164.7	1104.4
430	633.2	508.3	819.2	665.8	549.7	624.1	951.8	1011.5	983.7	1124.5	952.7	829.4	795.7	1088.3	1072.8	1022.3
432	549.7	433.8	742.5	599.6	481.6	554.5	855.6	916.8	892.0	1031.5	866.6	741.5	708.8	1088.3	1072.8	1022.3
434	371.5	287.5	575.6	463.1	348.7	412.3	653.2	714.4	693.0	830.6	677.6	549.9	519.8	840.2	873.3	840.2
436	477.4	571.8	596.1	634.6	619.1	616.5	241.1	347.3	416.5	478.8	516.4	433.2	443.3	630.4	537.1	675.6
438	504.8	518.8	514.4	511.4	446.0	464.4	377.5	280.2	340.2	414.1	436.3	353.8	365.4	557.9	471.5	597.0
440	194.7	331.2	278.2	355.3	355.1	327.7	238.3	262.1	228.9	367.4	246.8	128.7	127.9	440.5	409.0	421.4
442	328.8	418.7	469.5	507.1	466.4	466.8	252.3	339.0	367.4	471.5	514.3	324.1	323.9	591.9	525.3	603.1
444	438.0	486.7	608.6	612.1	545.5	565.1	389.6	486.8	525.6	589.7	589.7	477.4	576.0	749.8	676.9	662.2
446	542.9	583.7	714.1	715.6	644.4	667.8	459.7	562.8	613.9	696.8	687.9	579.5	576.0	836.2	754.2	762.2
448	213.5	253.8	407.8	380.3	310.8	331.8	397.6	457.5	443.5	576.4	451.7	323.3	302.2	655.9	621.6	623.9
450	263.7	274.2	439.1	442.4	385.6	397.1	333.5	406.2	411.0	532.8	445.0	322.7	310.8	631.9	582.4	619.6
452	1233.9	1313.5	1345.8	1411.9	1387.2	1372.0	906.4	991.0	1097.0	1075.1	1227.5	1174.7	1191.7	1251.8	1125.6	1352.8
454	147.1	0.0	310.9	175.7	65.6	125.2	432.6	443.0	378.5	525.3	321.0	205.2	168.0	546.5	554.3	472.7
456	207.7	175.7	186.0	0.0	166.0	0.0	106.6	0.0	111.2	146.9	139.6	177.9	216.3	224.4	181.0	294.9
458	178.4	175.7	278.5	52.4	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
460	160.7	65.6	278.5	118.3	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
462	139.5	125.2	206.2	52.4	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
464	432.6	587.5	423.6	583.5	593.3	52.4	583.5	570.4	482.4	622.8	378.6	308.8	372.9	593.7	637.5	479.7
466	432.6	587.5	423.6	583.5	593.3	52.4	583.5	570.4	482.4	622.8	378.6	308.8	372.9	593.7	637.5	479.7
468	378.5	525.5	322.1	482.4	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
470	263.7	274.2	439.1	442.4	385.6	397.1	333.5	406.2	411.0	532.8	445.0	322.7	310.8	631.9	582.4	619.6
472	1233.9	1313.5	1345.8	1411.9	1387.2	1372.0	906.4	991.0	1097.0	1075.1	1227.5	1174.7	1191.7	1251.8	1125.6	1352.8
474	147.1	0.0	310.9	175.7	65.6	125.2	432.6	443.0	378.5	525.3	321.0	205.2	168.0	546.5	554.3	472.7
476	207.7	175.7	186.0	0.0	166.0	0.0	106.6	0.0	111.2	146.9	139.6	177.9	216.3	224.4	181.0	294.9
478	178.4	175.7	278.5	52.4	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
480	160.7	65.6	278.5	118.3	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
482	139.5	125.2	206.2	52.4	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
484	432.6	587.5	423.6	583.5	593.3	52.4	583.5	570.4	482.4	622.8	378.6	308.8	372.9	593.7	637.5	479.7
486	432.6	587.5	423.6	583.5	593.3	52.4	583.5	570.4	482.4	622.8	378.6	308.8	372.9	593.7	637.5	479.7
488	378.5	525.5	322.1	482.4	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
490	263.7	274.2	439.1	442.4	385.6	397.1	333.5	406.2	411.0	532.8	445.0	322.7	310.8	631.9	582.4	619.6
492	1233.9	1313.5	1345.8	1411.9	1387.2	1372.0	906.4	991.0	1097.0	1075.1	1227.5	1174.7	1191.7	1251.8	1125.6	1352.8
494	147.1	0.0	310.9	175.7	65.6	125.2	432.6	443.0	378.5	525.3	321.0	205.2	168.0	546.5	554.3	472.7
496	207.7	175.7	186.0	0.0	166.0	0.0	106.6	0.0	111.2	146.9	139.6	177.9	216.3	224.4	181.0	294.9
498	178.4	175.7	278.5	52.4	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
500	160.7	65.6	278.5	118.3	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
502	139.5	125.2	206.2	52.4	427.2	194.0	194.0	111.2	146.9	0.0	253.6	323.6	362.1	176.8	58.7	234.9
504	432.6	587.5	423.6	583.5	593.3	52.4	583.5	570.4	482.4	622.8	378.6	308.8	372.9	593.7	637.5	479.7
506	432.6	587.5	423.6	583.5	593.3	52.4	583.5	570.4	482.4	622.8	378.6	308.				

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 2

To LATA *	538	540	542	544	546	548	550	552	555	558	560	562	564	565	568
366	479.9	1138.9	926.2	848.8	785.8	686.2	808.5	678.5	756.8	852.4	618.7	766.2	991.3	925.0	568
368	464.0	1117.5	911.0	829.3	763.2	671.1	794.0	669.3	749.4	845.2	617.2	767.7	987.6	917.5	1094.8
370	499.3	1154.4	947.8	872.0	813.3	703.7	824.6	688.0	763.6	858.5	617.1	760.8	992.3	931.3	1094.2
374	424.7	1087.6	873.3	795.9	736.1	630.3	752.1	620.5	698.5	794.1	760.9	709.4	933.1	866.7	1036.8
376	358.4	1008.6	803.8	720.9	654.7	565.7	689.1	571.2	653.8	749.8	732.6	689.8	953.0	821.3	1004.1
976	472.8	1141.5	920.1	847.4	793.1	674.7	794.4	653.6	727.4	821.8	776.9	719.3	993.0	894.7	1054.1
977	445.8	1090.1	889.7	804.8	734.7	653.0	776.5	659.0	741.1	837.1	816.6	771.0	983.8	908.9	1089.6
978	467.5	1138.7	910.6	842.9	785.0	664.0	781.3	633.5	703.9	796.9	744.3	783.3	922.3	869.7	1021.5
420	751.9	1397.2	1145.8	1104.3	1084.3	909.1	1005.8	834.8	703.8	796.9	744.3	783.3	922.3	869.7	1021.5
422	851.2	1492.8	1239.9	1200.9	1186.9	1005.3	1099.5	927.5	876.5	952.8	850.6	848.7	1104.6	1177.0	1104.2
424	902.3	1553.4	1303.1	1259.6	1236.1	1065.0	1163.2	992.6	1034.6	1110.4	1006.2	924.5	1181.2	1176.7	1255.6
426	968.5	1617.1	1365.7	1323.9	1302.0	1128.9	1225.6	1054.3	1094.1	1168.1	1060.6	978.1	1233.8	1233.4	1305.3
428	1014.5	1642.1	1386.0	1354.1	1342.9	1157.9	1248.4	1072.0	1094.1	1168.1	1060.6	978.1	1233.8	1233.4	1305.3
949	961.6	1602.7	1349.2	1311.2	1293.5	1115.9	1205.8	1032.4	1072.7	1144.0	1049.9	965.9	1215.9	1229.2	1278.2
951	1014.1	1664.6	1413.6	1371.0	1347.9	1176.3	1273.5	1102.3	1142.6	1216.6	1109.0	1028.5	1282.1	1261.9	1353.1
430	768.2	1403.7	1149.9	1112.9	1098.0	916.9	1009.4	836.9	874.0	946.8	839.1	756.9	1013.1	1011.8	1086.5
432	924.1	1553.7	1296.2	1264.9	1252.8	1068.7	1157.6	984.3	871.9	1011.0	896.0	812.4	1065.0	1073.4	1131.9
434	857.2	1482.1	1226.1	1194.2	1184.0	997.9	1085.4	912.1	943.1	1011.0	896.0	812.4	1065.0	1073.4	1131.9
436	941.4	1550.1	1292.1	1266.8	1263.2	1070.9	1151.9	978.4	861.9	1003.1	891.2	857.0	1103.3	1122.7	1162.2
438	676.6	1290.0	1033.4	1003.8	998.0	807.6	892.8	749.3	749.9	818.8	706.8	623.9	879.0	882.1	950.9
440	895.3	1487.7	1228.8	1208.5	1210.6	1013.5	1089.2	916.3	935.2	993.2	867.5	763.3	1026.3	1050.2	1082.7
442	814.7	1429.1	1172.0	1143.6	1137.7	947.4	1031.5	858.0	885.8	951.6	834.3	750.4	1002.0	1013.0	1067.6
444	746.5	1312.9	1053.5	1039.0	1048.8	846.1	915.0	743.4	756.9	811.8	684.6	600.4	843.1	867.7	901.0
446	738.5	1335.7	1077.5	1053.9	1054.1	858.4	937.3	784.0	787.4	850.3	730.7	646.6	897.0	910.5	962.0
448	640.1	1145.1	886.3	885.0	909.9	699.8	751.9	586.6	585.4	629.6	496.1	413.0	647.6	680.7	702.7
450	723.8	1239.8	981.0	978.9	1001.8	792.4	846.4	680.4	680.1	723.5	588.6	506.1	735.6	773.3	785.1
452	917.3	1472.6	1213.2	1203.8	1217.2	1012.5	1076.2	906.5	913.7	961.5	828.2	745.2	974.9	1012.8	1020.9
454	907.2	1442.9	1184.0	1179.6	1196.3	990.9	1048.8	881.3	883.2	926.3	790.3	708.4	931.3	974.8	973.1
456	988.2	1525.2	1266.8	1262.5	1281.0	1073.8	1131.4	964.2	965.5	1007.2	870.3	789.0	1007.8	1054.6	1045.9
458	997.3	1516.7	1286.8	1259.4	1282.3	1073.3	1125.7	961.0	957.5	994.7	855.8	776.1	987.0	1039.3	1020.4
460	1166.6	1643.6	1389.9	1401.8	1434.8	1223.2	1262.7	1105.8	1090.7	1115.0	899.0	839.0	1081.2	1150.9	1096.9
939	1055.0	1527.5	1273.5	1265.5	1319.3	1107.5	1146.3	989.7	971.3	999.1	857.1	782.8	968.6	1035.8	987.9
952	969.0	1464.4	1207.9	1213.9	1242.5	1031.7	1077.3	916.3	907.1	938.9	798.3	720.6	922.5	980.4	951.6
953	779.8	1317.2	1057.9	1051.5	1069.3	862.2	921.8	753.4	757.8	804.6	671.3	588.3	820.1	855.9	869.8
462	579.5	1249.9	1013.2	952.5	911.9	766.9	879.3	721.7	639.8	783.1	602.8	533.5	733.5	745.1	1077.0
464	501.5	1170.1	933.1	873.3	834.9	686.9	799.0	641.6	704.6	794.4	727.6	660.3	908.1	866.6	1003.0
466	644.6	1312.3	1073.0	1015.6	978.2	827.6	937.5	776.3	834.5	921.4	843.2	418.7	665.8	628.6	1114.2
468	340.1	974.1	724.5	681.0	665.2	485.8	585.4	417.7	471.1	557.4	485.2	418.7	665.8	628.6	760.7
470	513.3	1166.4	919.4	871.3	846.7	678.0	781.0	614.2	518.9	750.6	667.5	593.8	848.4	820.9	937.5
472	604.0	1239.6	987.0	948.1	932.9	752.3	846.7	675.2	568.9	793.3	694.0	614.5	872.1	860.5	952.7
474	672.9	1322.6	1073.0	1028.5	1006.0	834.1	933.6	763.9	809.6	888.9	793.0	714.5	971.7	957.0	1053.2
956	767.1	1423.2	1175.4	1128.1	1101.4	934.7	1036.4	867.8	914.9	994.6	898.6	819.3	1076.9	1062.8	1157.4
476	557.4	1150.3	893.2	865.8	864.4	669.9	752.7	579.1	669.3	779.2	570.8	489.0	745.9	743.5	822.8
477	537.6	1166.1	912.7	875.6	863.4	679.5	772.3	600.4	641.1	718.2	620.6	541.9	799.1	785.6	881.9
478	613.8	1209.9	952.1	927.8	921.2	731.4	811.7	638.2	664.8	731.3	617.4	534.3	789.1	793.8	861.1
480	1257.4	1909.3	1705.6	1623.8	1553.5	1463.6	1585.4	1448.0	1383.7	1520.6	1556.9	1490.2	1736.7	1687.0	1832.8
482	422.7	955.6	696.3	682.0	698.0	491.0	557.3	385.6	403.0	467.6	357.6	276.7	534.3	530.6	615.8
484	560.7	1035.3	777.1	780.1	811.0	599.3	644.4	482.6	475.9	517.6	383.9	300.8	538.3	568.4	615.8
486	279.9	748.1	489.0	475.9	500.3	289.2	349.7	178.2	175.9	281.3	214.2	166.8	391.4	351.4	491.4
488	465.0	864.9	608.6	621.4	664.9	453.4	480.7	331.3	308.6	342.6	208.5	125.1	370.4	392.9	442.5
490	544.5	983.0	726.3	735.8	773.7	561.4	596.8	441.4	425.7	460.4	223.6	242.0	473.7	508.2	532.7
492	478.0	911.3	653.8	661.4	698.2	486.9	523.0	366.8	362.6	392.4	260.4	176.5	422.4	444.4	492.3
520	359.5	1029.2	806.5	794.5	802.9	561.0	680.9	542.5	618.4	713.5	624.5	624.5	796.3	786.3	953.0
521	266.5	930.2	715.0	637.6	580.5	472.9	595.4	471.3	553.0	649.0	631.4	590.1	796.3	720.8	902.8
522	165.9	837.0	612.5	541.4	495.4	367.5	488.5	360.1	441.9	537.9	524.7	488.7	686.7	609.6	793.6
524	214.9	834.3	640.5	551.3	478.8	413.9	536.9	446.9	534.3	627.9	640.3	615.8	786.2	640.3	897.0
526	102.5	736.7	496.8	440.6	418.6	250.7	364.4	222.3	197.9	398.5	349.7	362.2	547.7	470.4	655.1
528	230.3	845.6	595.9	553.3	542.6	357.6	457.0	291.2	209.1	398.5	349.7	362.2	547.7	470.4	655.1
530	260.4	855.3	602.2	566.1	562.4	369.8	462.1	291.2	209.1	398.5	349.7	362.2	547.7	470.4	655.1
532	129.0	657.5	471.7	377.5	302.0	265.9	382.3	335.6	363.9	421.7	308.0	308.0	545.2	501.9	643.8
534	198.7	784.4	599.9	506.5	428.3	363.4	504.2	431.3	431.3	519.3	610.4	635.7	774.6	675.8	883.7
536	97.5	574.2	352.8	278.1	244.3	119.4	241.9	187.4	250.7	355.0	409.4	428.0	576.3	416.1	631.6
538	671.3	0.0	448.7	375.5	334.6	207.3	330.7	233.4	321.3	413.7	438.7	428.0	576.3	416.1	631.6
540	448.7	259.5	0.0	108.7	356.0	488.5	398.5	571.8	669.7	529.2	438.7	428.0	576.3	416.1	631.6
542	448.7	259.5	0.0	108.7	219.2	446.7	140.7	314.1	283.3	423.8	491.4	474.8	506.3	503.4	654.9
544	375.5	296.8	108.7	0.0	110.9	196.3	145.5	298.4	316.7	331.1	459.9	514.8	473.2	476.4	561.7

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EXHIBIT 5.4 LATATO-LATA DISTANCES, Part 2
LATATO-LATA Distances(miles)

648	650	652	654	656	658	660	662	664	666	668	670	672	674	676	678	720
1222.9	1045.8	1405.4	907.2	845.2	847.1	1196.5	1028.6	1355.0	1355.0	1399.9	1747.4	1723.4	1711.8	1484.8	1622.8	
366	1811.3	1371.2	873.2	813.6	816.7	1163.5	1002.5	1328.1	1328.1	1314.7	1713.1	1688.9	1677.3	1450.4	1589.9	
368	1269.4	1011.3	952.1	885.8	885.9	1239.4	1060.7	1388.2	1388.2	1370.4	1792.9	1769.4	1758.3	1531.4	1665.4	
370	1215.0	1037.4	888.4	813.4	811.8	1170.2	983.5	1311.1	1311.1	1293.0	1730.9	1709.4	1703.5	1477.8	1595.6	
374	1215.0	1037.4	888.4	813.4	811.8	1170.2	983.5	1311.1	1311.1	1293.0	1730.9	1709.4	1703.5	1477.8	1595.6	
376	1129.5	951.7	797.2	719.8	718.7	1076.8	896.1	1222.7	1222.7	1207.5	1640.2	1621.1	1617.2	1392.6	1502.0	
976	1284.6	1107.1	959.5	883.0	880.1	1240.9	1045.2	1373.6	1373.6	1357.2	1602.0	1580.9	1573.2	1347.5	1466.1	
977	1144.2	967.0	829.3	773.0	772.6	1120.9	969.1	1293.5	1293.5	1282.4	1669.0	1644.6	1633.0	1547.2	1666.1	
978	1324.2	1146.5	992.5	905.9	899.6	1267.6	1052.6	1381.6	1381.6	1366.6	1835.7	1816.5	1812.3	1587.2	1691.4	
420	1636.4	1518.6	1497.9	1359.6	1355.0	1622.9	1354.6	1680.1	1680.1	1639.5	2202.3	2186.5	2184.2	1959.4	2042.1	
422	1790.1	1612.4	1555.4	1456.6	1453.5	1722.1	1453.5	1778.6	1778.6	1736.8	2299.7	2282.7	2278.5	2052.9	2141.7	
424	1806.1	1628.9	1581.3	1481.9	1478.4	1755.7	1505.2	1831.9	1831.9	1793.6	2324.9	2304.3	2295.0	2068.1	2178.0	
426	1870.8	1693.8	1647.6	1548.4	1544.8	1823.0	1571.3	1897.8	1897.8	1858.6	2391.2	2370.1	2359.7	2132.5	2245.4	
428	1984.8	1787.1	1729.9	1631.3	1626.9	1894.7	1614.5	1937.1	1937.1	1897.2	2474.2	2457.5	2453.2	2227.5	2313.1	
949	1897.0	1703.6	1658.0	1558.8	1554.2	1828.3	1564.0	1889.2	1889.2	1847.3	2402.0	2383.1	2375.8	2149.3	2249.0	
951	1904.3	1727.6	1685.1	1585.8	1581.2	1863.2	1616.9	1943.7	1943.7	1905.3	2428.1	2408.6	2393.1	2165.5	2286.3	
430	1733.2	1555.4	1489.5	1392.1	1387.7	1650.2	1416.9	1729.4	1729.4	1680.6	2302.2	2281.3	2275.9	2073.3	2124.7	
432	1880.6	1702.8	1642.3	1542.1	1537.4	1805.5	1524.3	1847.2	1847.2	1801.9	2386.8	2371.1	2368.6	2143.5	2223.3	
434	1830.8	1653.0	1586.2	1489.1	1484.1	1745.3	1455.8	1777.7	1777.7	1731.3	2330.7	2317.2	2317.9	2093.9	2161.3	
436	1931.9	1754.2	1683.1	1587.2	1582.8	1838.3	1535.1	1853.8	1853.8	1803.4	2427.6	2415.7	2418.4	2195.1	2281.7	
438	1830.5	1513.3	1429.2	1336.7	1331.8	1638.3	1359.9	1589.5	1589.5	1540.8	2173.2	2165.0	2173.8	1953.2	1989.3	
440	1911.0	1733.5	1652.1	1559.2	1554.2	1801.0	1481.9	1797.2	1797.2	1743.7	2396.2	2387.7	2395.3	2173.9	2210.2	
442	1810.2	1632.6	1557.8	1462.6	1457.1	1680.4	1318.4	1628.6	1628.6	1571.5	2263.6	2261.0	2277.1	2059.9	2124.7	
444	1788.4	1622.6	1542.3	1455.9	1451.0	1660.4	1318.4	1628.6	1628.6	1571.5	2263.6	2261.0	2277.1	2059.9	2124.7	
446	1764.2	1587.3	1499.3	1408.3	1403.8	1645.7	1325.6	1642.1	1642.1	1590.0	2243.0	2236.8	2246.7	2026.7	2053.8	
448	1726.0	1554.2	1462.4	1372.4	1367.4	1636.4	1265.9	1656.0	1656.0	1502.4	2245.9	2249.4	2274.0	2061.7	2026.7	
450	1802.9	1623.7	1535.4	1443.3	1438.8	1631.1	1485.8	1793.1	1793.1	1733.2	2433.9	2430.5	2445.0	2226.7	2318.9	
452	1984.8	1788.4	1693.4	1604.5	1600.0	1831.1	1485.8	1793.1	1793.1	1733.2	2433.9	2430.5	2445.0	2226.7	2318.9	
454	1968.0	1792.4	1693.4	1604.5	1600.0	1831.1	1485.8	1793.1	1793.1	1733.2	2433.9	2430.5	2445.0	2226.7	2318.9	
456	2043.8	1867.8	1768.8	1681.5	1676.3	1821.1	1484.7	1767.7	1767.7	1705.2	2428.0	2427.9	2445.0	2226.7	2318.9	
458	2052.2	1886.8	1788.1	1697.0	1692.5	1845.6	1546.8	1845.6	1845.6	1780.3	2519.1	2506.2	2522.7	2305.4	2300.9	
460	2243.4	2069.1	1949.5	1874.5	1869.3	2077.8	1693.1	1980.5	1980.5	1909.0	2688.2	2692.4	2716.4	2303.0	2305.9	
939	2136.1	1962.7	1868.7	1785.4	1780.7	2077.8	1693.1	1980.5	1980.5	1909.0	2688.2	2692.4	2716.4	2303.0	2305.9	
952	2045.4	1871.3	1751.9	1676.3	1671.6	1864.3	1576.9	1864.2	1864.2	1792.9	2575.5	2580.9	2606.9	2394.9	2347.9	
953	1846.8	1672.0	1602.5	1480.2	1475.1	1594.5	1336.0	1640.1	1640.1	1578.6	2301.4	2301.9	2322.2	2107.2	2090.2	
464	1404.2	1226.3	1556.1	1067.3	1062.7	1397.2	1173.8	1502.7	1502.7	1474.1	1984.1	1944.1	1937.2	1711.2	1621.0	
466	1516.9	1339.5	1691.0	1191.6	1186.4	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
468	1382.6	1207.7	1503.3	1017.7	1012.6	1246.0	937.0	1259.9	1259.9	1216.8	1846.2	1842.6	1859.2	1643.2	1653.8	
470	1482.2	1304.7	1630.4	1171.3	1166.4	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
472	1594.3	1416.8	1739.3	1244.4	1239.4	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
474	1519.1	1441.2	1778.0	1280.0	1274.6	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
476	1595.0	1419.3	1719.2	1346.7	1341.7	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
477	1551.0	1374.1	1687.0	1232.6	1227.6	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
478	1554.4	1478.3	1781.3	1293.6	1288.1	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
480	1718.9	1565.4	1969.9	1346.7	1341.7	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
482	1511.9	1341.4	1604.5	1232.6	1227.6	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
484	1653.3	1484.2	1737.1	1337.0	1331.7	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
486	1364.2	1200.3	1432.1	1102.1	1096.5	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
488	1549.3	1388.1	1610.5	1169.7	1164.2	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
490	1536.9	1470.2	1710.5	1258.6	1253.1	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
492	1568.5	1403.1	1638.0	1293.6	1288.1	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
520	1231.8	1054.0	1389.0	1066.8	1061.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
521	1145.4	968.3	1292.1	1066.8	1061.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
522	1153.9	973.4	1277.2	1066.8	1061.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
524	1019.1	843.0	1158.8	1066.8	1061.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
526	1192.1	1023.2	1285.3	1066.8	1061.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
528	1309.0	1137.6	1411.1	1066.8	1061.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
530	1344.6	1173.7	1443.1	1066.8	1061.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
532	966.0	797.5	1065.4	1195.8	1190.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
534	973.7	798.7	1105.9	1207.7	1202.2	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
536	1070.1	903.3	1137.3	1293.8	1288.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
538	1093.1	925.7	1182.9	1321.8	1316.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
540	1060.0	967.4	972.4	1221.6	1216.1	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
542	1130.7	1004.1	1106.4	1324.0	1318.5	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	
544	1039.5	906.5	1034.2	1239.8	1234.3	1468.5	1241.6	1570.4	1570.4	1540.1	2034.5	2013.9	2005.7	1779.3	1892.2	

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 2
LATA-to-LATA Distances (miles)

LATA #	721	722	724	726	728	730	732	734	736	738	740	973
366	1440.5	1788.0	1725.5	1725.5	1672.1	1657.3	1639.2	1662.6	171.4	1726.2	1751.4	1573.8
368	1410.3	1755.6	1692.9	1692.9	1640.6	1627.8	1611.0	1632.1	1693.8	1720.6	1751.4	1545.0
370	1478.8	1829.6	1768.6	1768.6	1712.3	1694.3	1674.2	1701.2	1767.7	1790.5	1790.5	1609.9
374	1403.9	1758.2	1699.5	1699.5	1639.1	1618.6	1597.6	1626.6	1716.2	1790.5	1790.5	1533.6
376	1311.4	1664.6	1606.0	1606.0	1545.8	1526.9	1507.5	1533.9	1602.6	1623.3	1623.3	1442.7
976	1471.3	1828.1	1770.1	1767.0	1708.0	1684.8	1661.9	1694.3	1766.1	1784.2	1784.2	1598.9
977	1371.2	1713.9	1649.8	1650.7	1600.0	1589.7	1574.5	1592.6	1652.1	1680.8	1680.8	1507.7
978	1487.9	1851.0	1796.3	1791.1	1728.0	1698.7	1672.4	1711.2	1788.9	1801.8	1801.8	1611.2
420	1815.1	2194.9	2148.7	2138.2	2064.1	2015.4	1977.1	2038.1	2132.8	2130.3	2130.3	1923.1
422	1915.0	2294.8	2246.3	2236.0	2164.1	2114.8	2075.8	2137.9	2232.7	2230.1	2230.1	2022.3
424	1960.5	2334.4	2283.7	2276.1	2206.8	2164.0	2128.2	2183.9	2272.3	2275.7	2275.7	2072.7
426	2027.6	2401.8	2343.4	2343.4	2274.1	2230.6	2194.3	2250.9	2339.7	2342.7	2342.7	2139.2
428	2080.7	2464.4	2419.9	2408.4	2331.8	2277.4	2235.2	2303.2	2402.4	2395.8	2395.8	2183.8
949	2024.7	2403.2	2355.2	2345.8	2273.3	2225.2	2186.4	2247.8	2341.1	2339.9	2339.9	2132.8
951	2071.5	2443.8	2391.6	2385.0	2317.0	2275.4	2240.0	2294.9	2381.6	2386.5	2386.5	2184.3
430	1834.2	2217.9	2174.5	2162.2	2085.1	2031.7	1990.7	2056.7	2155.9	2149.2	2149.2	1938.4
432	1923.9	2310.4	2268.6	2255.3	2176.2	2119.1	2075.8	2146.1	2248.5	2238.8	2238.8	2025.0
434	1923.9	2310.4	2268.6	2255.3	2176.2	2119.1	2075.8	2146.1	2248.5	2238.8	2238.8	2025.0
436	2007.5	2398.2	2359.5	2344.4	2261.7	2198.8	2152.2	2228.8	2336.4	2321.7	2321.7	2103.7
438	1742.2	2134.1	2097.4	2080.9	1996.8	1933.6	1887.8	1963.4	2072.4	2056.4	2056.4	1838.7
440	1957.9	2353.1	2318.5	2300.8	2214.0	2145.1	2095.5	2178.0	2291.5	2271.1	2271.1	2049.1
442	1881.0	2271.2	2232.5	2217.3	2134.9	2073.3	2027.7	2102.5	2209.4	2195.4	2195.4	1978.5
444	1798.2	2199.1	2170.6	2149.2	2058.5	1979.7	1926.3	2016.4	2134.7	2114.5	2114.5	1893.3
446	1801.1	2196.3	2162.2	2144.1	2057.1	1989.0	1940.4	2021.4	2134.7	2114.5	2114.5	1893.3
448	1656.0	2064.4	2045.6	2018.5	1916.8	1826.9	1767.2	1870.0	2004.1	1963.0	1963.0	1728.4
450	1748.9	2156.3	2135.8	2109.7	2009.5	1921.0	1861.7	1963.4	2095.9	2056.5	2056.5	1822.6
452	1966.6	2368.8	2341.2	2319.3	2225.5	2145.7	2090.2	2184.0	2307.7	2277.2	2277.2	2048.1
454	1946.9	2352.0	2327.9	2304.0	2208.8	2122.0	2064.0	2162.8	2291.3	2256.0	2256.0	2023.9
456	2029.8	2434.6	2409.9	2386.4	2289.6	2204.9	2146.7	2245.8	2373.8	2338.9	2338.9	2106.7
458	2029.7	2436.8	2414.9	2389.8	2290.2	2201.2	2140.7	2244.2	2376.3	2337.3	2337.3	2102.6
460	2176.2	2587.6	2572.3	2543.4	2437.8	2338.2	2271.9	2386.6	2527.9	2479.2	2479.2	2238.7
939	2060.0	2471.7	2457.0	2427.7	2321.6	2221.8	2155.7	2270.2	2412.0	2362.8	2362.8	2122.3
952	1887.0	2396.6	2378.6	2351.2	2248.2	2153.8	2090.7	2199.5	2351.0	2336.5	2336.5	2054.7
953	1818.1	2223.1	2199.2	2175.1	2077.9	1993.9	1936.7	2034.2	2162.3	2127.3	2127.3	1895.9
462	1614.7	1980.1	1925.9	1920.4	1850.3	1823.9	1795.2	1898.2	1918.0	1929.0	1929.0	1735.5
464	1544.2	1914.4	1863.4	1855.6	1788.1	1751.4	1720.7	1767.7	1852.3	1859.0	1859.0	1662.1
466	1684.9	2051.2	1997.2	1991.6	1927.0	1893.3	1863.6	1908.4	1989.1	1999.4	1999.4	1804.5
468	1406.4	1797.6	1762.1	1744.7	1660.4	1600.2	1557.7	1628.0	1735.9	1720.8	1720.8	1506.3
470	1575.8	1956.9	1912.8	1900.8	1825.2	1776.4	1739.1	1798.8	1894.9	1891.0	1891.0	1684.4
472	1670.6	2056.8	2015.9	2002.0	1922.5	1867.0	1825.6	1892.9	1994.9	1985.5	1985.5	1773.5
474	1734.9	2114.1	2067.9	2057.3	1983.6	1936.0	1898.6	1958.0	2052.0	2050.1	2050.1	1844.0
956	1623.1	2196.6	2146.1	2138.3	2069.0	2027.3	1992.7	2046.5	2134.4	2138.2	2138.2	1936.4
476	1611.4	2007.5	1975.0	1955.9	1867.7	1799.4	1751.5	1831.6	1946.0	1924.7	1924.7	1703.8
478	1674.6	2070.9	2038.4	2019.3	1931.0	1862.0	1813.3	1894.6	2009.4	1987.7	1987.7	1766.2
480	2137.1	2430.1	2342.0	2360.5	2339.8	2362.9	2362.2	2350.5	2370.9	2432.7	2432.7	2289.5
482	1446.6	1852.1	1830.3	1804.8	1706.5	1623.8	1568.9	1662.9	1791.5	1756.1	1756.1	1526.3
484	1553.4	1963.9	1946.7	1919.5	1814.8	1720.6	1659.1	1765.7	1904.1	1858.6	1858.6	1621.7
486	1245.2	1654.1	1637.9	1609.0	1506.1	1418.3	1361.9	1459.6	1594.0	1552.7	1552.7	1320.3
488	1996.0	2609.7	2601.1	2586.1	2557.9	2556.2	2491.3	2604.8	2750.7	2697.3	2697.3	2456.7
490	1510.5	2023.0	1911.5	1880.2	1772.2	1673.1	1609.1	1720.6	1863.6	1813.2	1813.2	1573.8
492	1436.0	1848.4	1837.0	1805.5	1697.7	1599.5	1536.3	1646.4	1788.9	1739.1	1739.1	1500.3
520	1374.1	1739.4	1686.8	1680.1	1615.1	1584.5	1558.2	1597.5	1677.3	1668.2	1668.2	1497.0
521	1267.5	1634.4	1583.5	1575.6	1509.1	1477.8	1452.0	1490.9	1572.3	1561.7	1561.7	1390.5
522	1209.8	1589.6	1547.1	1533.9	1458.0	1413.5	1380.9	1433.0	1527.6	1525.0	1525.0	1323.2
524	1139.0	1501.5	1449.3	1442.2	1377.9	1352.1	1330.4	1362.2	1439.3	1452.4	1452.4	1266.6
526	1161.0	1555.8	1525.1	1504.6	1416.3	1353.5	1311.3	1382.1	1494.4	1475.0	1475.0	1259.5
528	1288.3	1684.6	1654.2	1633.6	1544.4	1476.2	1433.2	1508.8	1623.2	1601.8	1601.8	1383.4
530	1310.3	1709.2	1681.1	1659.2	1567.6	1497.3	1449.9	1530.0	1648.0	1623.1	1623.1	1401.7
532	987.0	1365.2	1324.0	1303.7	1233.8	1193.7	1165.7	1210.4	1303.2	1302.0	1302.0	1105.1
534	1080.4	1443.3	1392.2	1384.3	1319.4	1293.7	1272.6	1303.5	1381.2	1337.7	1337.7	1208.4
536	987.5	1385.4	1359.0	1335.8	1244.0	1178.9	1137.1	1208.1	1324.3	1301.2	1301.2	1084.9
538	1066.8	1457.9	1424.8	1405.6	1320.3	1263.7	1228.9	1288.9	1396.2	1361.6	1361.6	1171.2
540	883.4	996.7	970.7	970.7	836.2	703.0	629.0	765.5	943.7	854.6	854.6	602.8
542	801.7	1218.9	1226.3	1184.1	1082.4	949.0	882.8	1002.1	1162.1	1033.7	1033.7	849.2
544	774.7	1188.5	1184.3	1148.2	1036.5	942.4	887.4	985.6	1129.8	1078.5	1078.5	844.4

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 3
LATA-to-LATA Distances(miles)

To LATA #	120	122	124	126	128	130	132	133	134	136	138	140	974	220	222
546	1755.1	1702.6	1632.2	1635.2	1715.3	1693.4	1620.3	1554.1	1582.1	1468.0	1467.2	1331.5	1397.7	1525.3	1512.9
548	1642.6	1577.4	1522.1	1506.4	1586.9	1561.6	1497.1	1416.5	1433.5	1351.4	1342.3	1219.0	1284.9	1371.9	1371.9
550	1760.8	1692.7	1640.9	1620.8	1701.3	1675.0	1610.8	1528.5	1547.6	1469.1	1458.1	1337.0	1403.5	1486.0	1482.9
552	1610.5	1536.7	1492.4	1463.6	1543.9	1516.2	1452.6	1368.0	1390.0	1318.6	1303.7	1170.5	1255.5	1321.2	1321.2
554	1531.8	1451.6	1416.2	1377.2	1457.0	1427.6	1364.9	1277.6	1303.4	1237.1	1220.8	1117.1	1180.7	1226.1	1229.4
556	1675.5	1597.4	1558.0	1523.4	1603.3	1574.3	1511.4	1424.7	1449.6	1384.0	1366.1	1258.3	1322.6	1373.9	1376.8
558	1765.1	1684.6	1649.3	1610.0	1689.7	1660.4	1597.6	1509.6	1536.2	1470.0	1454.6	1349.7	1413.6	1466.0	1461.0
560	1690.2	1602.3	1578.0	1526.5	1605.2	1573.5	1512.6	1421.7	1452.9	1401.7	1386.9	1274.8	1351.7	1401.7	1371.7
562	1616.6	1526.2	1505.7	1450.1	1528.4	1496.1	1435.7	1344.1	1376.6	1329.4	1302.7	1213.7	1274.8	1328.2	1293.7
564	1871.3	1782.8	1759.0	1706.8	1785.3	1753.3	1692.7	1601.4	1633.2	1582.8	1557.8	1464.3	1526.3	1540.4	1551.1
566	1837.0	1755.7	1721.5	1680.9	1760.5	1730.4	1668.2	1579.8	1607.1	1562.6	1526.1	1422.2	1486.0	1524.9	1530.9
568	1959.9	1867.9	1849.5	1791.5	1869.2	1836.2	1776.6	1684.0	1718.2	1673.2	1645.9	1557.4	1618.6	1619.1	1633.1
570	1886.0	1803.4	1871.2	1828.5	1868.0	1837.7	1775.6	1682.0	1719.0	1673.5	1647.5	1551.0	1636.3	1672.0	1678.0
572	1835.1	1765.0	1715.7	1692.7	1773.1	1746.1	1682.2	1598.7	1619.3	1543.3	1531.0	1412.8	1478.4	1553.9	1552.5
601	1835.1	1765.0	1715.7	1692.7	1773.1	1746.1	1682.2	1598.7	1619.3	1543.3	1531.0	1412.8	1478.4	1553.9	1552.5
620	1073.1	1060.3	951.3	1009.7	1081.9	1073.3	1011.5	967.3	980.9	944.6	943.6	819.1	744.8	982.5	943.7
624	1041.6	1052.9	926.0	1013.7	1078.4	1073.3	1011.5	967.3	980.9	944.6	943.6	819.1	744.8	982.5	943.7
626	1142.7	1143.4	1024.0	1098.6	1167.2	1162.3	1102.6	1066.6	1044.4	1030.5	939.1	770.5	833.2	1090.0	1047.2
628	1103.3	1099.0	983.2	1052.0	1122.0	1115.8	1055.3	1016.4	996.2	860.1	890.6	730.2	786.5	1037.1	995.6
630	1288.4	1267.4	1165.6	1212.4	1287.2	1275.4	1212.1	1159.7	1149.8	1024.9	1044.5	888.3	950.4	1163.3	1130.9
632	1169.3	1138.1	1045.7	1079.3	1156.1	1141.6	1071.9	1019.7	1014.1	895.9	910.0	757.9	822.0	1017.7	988.4
634	1021.0	984.4	897.3	924.1	1001.6	986.1	921.6	862.5	858.1	663.0	743.0	604.6	669.6	860.2	830.8
636	1065.2	1034.2	941.6	975.9	1052.4	1038.4	974.3	918.2	911.2	791.9	806.8	653.9	717.9	919.1	888.0
638	1453.1	1463.4	1337.7	1421.9	1488.4	1485.5	1427.0	1393.9	1369.9	1229.6	1265.1	1104.7	1157.4	1418.6	1191.8
640	1287.8	1274.5	1166.1	1222.7	1295.7	1283.6	1223.8	1176.5	1162.6	1032.8	1056.9	898.3	958.4	1185.2	1150.5
642	1290.1	1259.9	1166.6	1201.2	1278.0	1263.5	1199.2	1140.9	1135.9	1017.7	1031.9	879.7	943.8	1137.2	1109.0
646	1416.0	1387.1	1292.5	1328.5	1405.2	1390.8	1326.5	1267.9	1263.2	1144.8	1159.2	1006.9	1070.8	1263.0	1235.6
958	1337.3	1305.4	1213.7	1245.6	1323.0	1307.8	1243.3	1183.5	1179.8	1063.4	1076.2	925.2	989.6	1177.3	1150.5
648	1984.8	1997.6	1870.7	1956.1	2022.6	2019.6	1961.0	1926.1	1903.5	1687.3	1763.7	1637.9	1693.4	1947.0	1906.0
650	1828.3	1835.5	1712.2	1791.6	1859.8	1855.3	1795.7	1757.8	1737.2	1599.3	1631.7	1471.2	1526.3	1775.9	1736.2
652	2231.0	2233.6	2113.6	2186.9	2256.9	2250.7	2189.8	2147.1	2130.0	1995.1	2024.2	1864.2	1921.4	2150.7	2122.5
960	2190.6	2210.2	2079.3	2171.8	2236.2	2235.1	2177.7	2146.7	2121.6	1979.8	2017.1	1856.9	1908.4	2171.3	2128.5
654	1760.4	1759.2	1647.8	1708.0	1780.8	1771.6	1709.2	1660.9	1647.9	1542.2	1383.7	1365.3	1428.9	1633.6	1633.6
656	1771.6	1745.5	1648.5	1687.3	1763.9	1749.6	1685.3	1626.2	1622.0	1503.1	1518.0	1376.0	1440.9	1667.1	1593.2
658	1786.8	1756.1	1663.4	1696.1	1773.5	1757.9	1693.3	1631.3	1629.6	1514.2	1526.4	1376.0	1420.9	1620.3	1596.7
660	2085.0	2071.8	1963.7	2018.4	2092.5	2081.6	2018.5	1966.1	1956.4	1829.7	1851.1	1694.1	1755.2	1936.5	1768.8
664	1993.0	1949.0	1863.4	1884.1	1963.5	1943.8	1878.6	1808.2	1814.3	1628.1	1710.7	1714.8	1638.6	1784.6	1768.8
666	2315.8	2210.9	2192.1	2210.9	2293.0	2252.9	2205.8	2136.4	2141.6	2154.1	2035.7	2041.4	1897.5	2097.4	2097.4
668	2306.6	2259.9	2183.1	2193.9	2273.6	2251.9	2215.0	2115.0	2123.4	2139.1	2022.8	2025.1	1865.2	2074.3	2074.3
670	2549.1	2558.6	2434.1	2514.9	2583.0	2578.6	2518.8	2479.7	2460.1	2446.7	2322.6	2354.6	2249.5	2484.9	2456.9
672	2448.7	2513.2	2385.5	2471.9	2538.4	2535.5	2476.7	2441.1	2419.1	2403.2	2279.6	2313.9	2207.2	2460.2	2420.2
674	2495.1	2495.1	2334.8	2429.4	2493.2	2492.6	2435.5	2405.1	2379.6	2369.9	2237.5	2275.4	2115.2	2430.0	2387.2
676	2202.1	2239.9	2108.9	2201.5	2265.9	2264.8	2207.4	2176.4	2151.3	2132.2	2008.5	1886.6	1936.1	2150.2	2150.2
720	2504.5	2495.1	2384.1	2442.9	2516.3	2500.3	2443.5	2392.4	2381.7	2377.8	2253.4	2276.2	2179.0	2362.9	2362.9
721	2375.0	2348.2	2251.9	2289.1	2366.1	2351.0	2286.5	2224.9	2222.9	2228.0	2105.9	2119.5	2031.9	2212.9	2190.1
722	2681.9	2669.7	2561.0	2616.2	2690.4	2679.4	2616.1	2562.6	2553.9	2551.7	2428.6	2291.9	2353.1	2560.7	2532.0
724	2597.9	2591.4	2478.2	2540.4	2613.1	2603.9	2541.4	2491.7	2488.1	2474.8	2374.3	2216.0	2275.9	2494.5	2463.2
726	2613.4	2602.7	2492.8	2549.8	2623.6	2613.1	2550.1	2491.7	2488.1	2474.8	2374.3	2216.0	2275.9	2494.5	2463.2
728	2586.0	2567.2	2463.9	2511.1	2586.7	2573.8	2509.9	2452.7	2447.0	2448.9	2324.7	2187.7	2250.3	2467.2	2467.2
730	2598.7	2569.4	2475.4	2509.1	2586.7	2570.7	2506.0	2442.4	2442.2	2448.9	2324.7	2187.7	2250.3	2467.2	2467.2
732	2591.7	2556.6	2468.1	2494.3	2572.8	2555.1	2490.1	2423.3	2426.0	2435.8	2315.8	2177.4	2242.5	2407.3	2385.6
734	2591.6	2567.4	2468.8	2509.2	2585.8	2571.4	2507.0	2446.5	2443.5	2447.5	2325.0	2187.2	2250.8	2435.5	2413.1
736	2679.7	2663.0	2558.0	2607.7	2682.9	2670.6	2606.8	2550.6	2544.1	2544.2	2420.6	2339.8	2346.1	2545.2	2518.6
738	2622.0	2603.0	2555.2	2629.6	2658.4	2655.1	2551.3	2492.7	2490.9	2490.9	2366.8	2387.5	2499.0	2470.5	2470.5
740	2675.8	2653.6	2553.3	2653.6	2672.3	2658.4	2594.1	2534.6	2530.8	2533.9	2411.0	2426.8	2336.7	2524.8	2500.7
973	2521.6	2483.1	2398.1	2427.7	2505.8	2488.9	2424.0	2358.7	2360.8	2368.9	2257.9	2109.3	2174.1	2341.4	2321.8

EXHIBIT 5-4 LATA-TO-LATA DISTANCES, Part 3

To LATA *	927	928	929	254	256	932	320	322	324	325	326	328	922	923	330	332
546	1284.9	1304.4	1302.4	1135.1	1210.1	1154.3	1168.2	1214.2	1077.9	1169.9	1079.5	1013.0	987.3	1114.0	812.0	948.8
548	1132.6	1148.4	1153.0	984.4	1066.7	993.2	1049.4	1088.8	946.2	1046.4	968.2	882.1	849.6	989.6	668.1	849.4
550	1240.1	1254.3	1261.6	1093.3	1177.9	1097.5	1167.5	1205.3	1061.5	1163.4	1087.9	990.0	963.8	1106.7	781.8	971.1
552	1075.3	1088.0	1097.8	930.3	1017.2	930.4	1018.8	1052.8	907.7	1012.4	944.4	845.5	808.4	955.9	626.9	836.6
554	979.9	990.3	1003.9	838.4	928.1	831.9	945.1	974.3	828.6	935.8	877.4	768.8	728.4	880.2	550.6	781.2
556	1127.7	1138.0	1151.5	985.6	1074.8	979.9	1086.3	1117.6	971.9	1078.9	1015.2	911.1	871.9	1022.2	592.2	912.3
558	1210.4	1219.5	1234.9	1070.4	1160.7	1061.1	1177.7	1207.5	1061.9	1168.9	1108.2	1001.8	961.6	1113.1	783.2	1007.1
560	1118.7	1124.7	1144.8	984.9	1077.6	967.3	1112.5	1136.5	991.8	1100.5	1051.2	935.3	891.9	1046.4	721.0	963.4
562	1040.3	1045.3	1066.9	908.8	1002.2	888.5	1043.7	1065.3	921.5	1030.5	986.1	866.7	822.3	977.2	655.8	904.8
564	1297.8	1303.4	1324.3	1165.3	1258.2	1146.1	1293.1	1317.5	1172.7	1281.4	1230.7	1115.9	1072.8	1227.1	900.8	1139.7
566	1279.7	1288.2	1304.5	1140.7	1231.5	1129.8	1250.2	1279.6	1134.0	1241.2	1181.1	1074.1	1033.7	1185.5	855.7	1080.0
568	1379.5	1382.7	1406.7	1251.0	1344.7	1227.4	1387.1	1409.2	1265.3	1374.3	1327.7	1210.7	1165.9	1320.7	997.3	1240.7
570	1126.7	1135.2	1151.6	988.0	1079.0	976.9	1101.0	1129.1	983.6	1091.2	1034.2	924.5	883.3	1035.9	706.7	937.8
572	1307.7	1320.8	1329.9	1162.0	1247.9	1163.3	1242.7	1278.7	1134.4	1237.3	1153.7	1071.3	1036.0	1180.6	854.0	1046.4
620	803.0	835.8	803.4	684.6	705.4	749.4	853.7	833.9	560.6	592.9	481.0	516.7	532.0	555.3	487.0	354.2
624	883.0	917.7	877.1	786.5	786.2	858.7	631.7	690.8	654.6	656.7	551.7	625.2	651.8	632.8	646.5	455.2
626	923.5	957.1	921.7	811.3	825.6	878.2	684.3	744.6	684.2	706.0	595.5	644.1	662.3	673.2	620.9	477.5
628	866.7	900.1	865.5	753.0	768.9	819.6	630.1	690.5	626.5	651.1	540.0	585.7	603.4	617.0	563.4	419.7
630	960.6	990.6	965.3	826.0	866.0	879.5	757.6	815.6	717.2	771.9	661.5	662.0	663.1	726.1	559.2	523.3
632	808.8	838.1	815.8	672.1	715.4	724.3	616.5	672.9	566.7	628.3	520.4	509.7	508.7	579.9	405.7	380.6
634	654.2	684.4	660.1	521.3	559.7	578.2	459.4	515.4	410.9	470.8	363.4	355.9	359.9	422.4	291.2	223.6
635	716.8	747.3	721.9	585.1	621.6	642.5	515.1	572.4	472.9	528.2	418.9	419.2	424.1	481.6	349.9	279.6
636	1076.5	1110.4	1074.0	966.0	978.8	1033.1	834.0	894.2	838.4	856.7	747.1	799.0	817.1	825.8	769.5	632.0
638	1248.5	1281.6	1248.0	1130.3	1150.8	1193.6	1012.6	1073.0	1006.7	1033.9	922.9	962.3	975.2	999.5	903.7	800.1
640	992.8	1023.9	996.5	863.3	896.6	920.6	777.8	837.1	748.5	794.4	682.7	696.7	702.4	752.0	612.3	547.9
642	924.0	952.3	932.2	784.1	832.0	832.1	737.8	793.7	683.9	749.0	641.8	625.0	620.2	699.7	498.9	501.9
644	1046.9	1074.5	1058.1	905.0	956.1	949.9	864.9	920.5	808.5	875.7	768.9	748.6	741.4	826.0	609.0	629.1
646	960.5	988.1	963.8	818.5	869.8	863.8	780.7	835.8	722.4	790.9	685.0	652.3	655.0	740.6	524.5	545.2
648	1765.2	1797.0	1767.3	1637.9	1668.2	1695.0	1538.9	1599.1	1521.1	1558.5	1446.6	1470.9	1477.0	1520.2	1375.4	1317.2
650	1590.3	1621.8	1593.1	1461.6	1493.7	1518.1	1367.2	1427.3	1346.0	1386.1	1274.1	1295.1	1300.3	1346.6	1197.6	1143.1
652	1960.4	1990.2	1965.9	1824.5	1865.6	1874.4	1750.2	1809.5	1716.9	1766.9	1655.2	1651.6	1660.9	1723.7	1537.4	1519.7
660	1994.7	2026.8	1995.9	1869.4	1897.4	1927.6	1764.3	1824.7	1750.9	1784.8	1673.2	1673.2	1680.9	1748.1	1610.1	1546.0
664	1463.4	1492.7	1469.7	1326.0	1369.5	1375.5	1260.3	1318.9	1220.7	1275.4	1164.5	1184.3	1162.3	1230.2	1038.6	1027.0
666	1397.8	1424.0	1408.7	1252.8	1309.3	1291.8	1233.3	1278.5	1163.1	1233.6	1127.5	1101.7	1090.6	1183.1	943.2	987.7
668	1394.7	1419.8	1406.8	1248.1	1308.2	1283.7	1229.5	1283.4	1163.5	1238.4	1134.3	1101.1	1087.4	1186.6	933.6	994.9
670	1753.3	1780.9	1762.2	1611.0	1662.1	1653.8	1563.5	1620.8	1514.1	1576.6	1467.3	1454.8	1447.6	1528.8	1307.7	1328.1
672	2272.8	2303.8	2276.2	2141.5	2176.5	2195.2	2051.5	2111.6	2028.5	2103.6	1991.7	1958.3	1979.0	2061.8	1881.7	1857.8
674	2252.7	2284.8	2254.2	2126.5	2155.5	2183.9	2033.1	2083.4	2008.8	2043.5	1931.8	1959.4	1965.8	2006.5	1862.9	1804.2
676	2024.0	2056.2	2025.4	1898.6	1926.8	1956.6	1793.9	1854.3	1780.3	1814.4	1702.7	1731.2	1738.2	1777.5	1638.5	1575.4
720	2179.3	2206.6	2188.5	2036.3	2088.4	2077.6	1989.8	2047.3	1940.6	2003.1	1893.6	1881.0	1873.2	1955.5	1729.9	1754.6
722	2342.7	2369.1	2352.9	2198.0	2253.2	2236.5	2159.6	2216.5	2106.1	2172.0	2063.4	2045.6	2035.6	2123.3	1887.0	1858.2
724	2282.6	2310.2	2291.3	2140.3	2191.1	2182.6	2089.8	2147.7	2043.0	2103.7	1993.7	1963.9	1976.9	2056.7	1835.5	1855.1
726	2281.1	2307.9	2290.9	2137.2	2191.0	2177.0	2094.9	2152.1	2043.5	2107.8	1998.7	1968.4	1974.4	2059.5	1828.2	1859.4
728	2222.9	2248.2	2234.5	2076.5	2135.5	2111.7	2049.5	2105.2	1989.8	2060.4	1953.5	1928.1	1915.5	2010.1	1761.3	1813.7
730	2195.8	2218.7	2210.0	2047.1	2113.0	2075.3	2041.7	2094.8	1971.0	2049.7	1946.9	1907.5	1890.0	1997.0	1726.0	1807.7
732	2168.4	2190.0	2184.0	2019.0	2086.4	2043.9	2025.4	2076.6	1949.8	2031.8	1931.6	1884.9	1864.8	1978.0	1696.3	1793.5
734	2208.0	2232.1	2222.8	2060.2	2122.8	2091.9	2044.2	2098.6	1978.8	2053.5	1948.6	1916.1	1901.0	2002.0	1741.6	1808.9
736	2323.3	2348.8	2334.6	2177.2	2235.4	2213.1	2147.4	2203.4	2089.3	2158.7	2051.3	2027.9	2015.9	2108.8	1862.8	1911.5
738	2280.7	2307.1	2291.3	2136.0	2191.3	2174.4	2098.2	2155.0	2044.3	2110.5	2002.0	1883.7	1973.6	2061.6	1824.7	1862.4
740	2298.2	2322.6	2310.9	2180.8	2212.5	2183.1	2131.9	2186.7	2068.1	2141.7	2036.2	1991.1	1991.1	2090.5	1832.7	1896.4
973	2108.1	2130.4	2122.9	1959.0	2026.5	1985.5	1959.4	2011.6	1885.8	1966.5	1865.0	1821.9	1803.2	1913.2	1637.0	1726.4

EXHIBIT 5-4 LATA-TO-LATA DISTANCES, Part 3

To LATA #	LATA-TO-LATA Distances (miles)									
	334	336	338	937	938	340	342	344	346	
546	911.9	882.7	937	978.0	842.1	1117.9	1076.6	1104.3	1057.1	350
548	787.5	751.7	937	850.0	718.7	1012.4	1038.9	1014.3	962.2	352
550	905.5	868.4	937	966.8	837.3	1132.9	1161.0	1136.7	1084.2	354
552	831.6	778.2	937	816.3	692.3	991.8	1081.2	1004.4	949.9	356
554	767.5	689.4	937	742.6	627.5	927.0	1035.3	949.0	893.1	358
556	903.7	827.9	937	883.5	763.6	1063.0	1145.7	1080.4	1025.3	360
558	997.2	920.5	937	975.1	857.1	1157.2	1241.5	1175.2	1119.9	362
560	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	364
562	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	366
564	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	368
566	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	370
568	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	372
570	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	374
572	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	376
574	1049.9	980.2	937	1040.7	912.5	1299.2	1414.1	1314.7	1250.9	378
576	920.5	846.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	380
578	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	382
580	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	384
582	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	386
584	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	388
586	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	390
588	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	392
590	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	394
592	1049.9	980.2	937	1040.7	912.5	1299.2	1414.1	1314.7	1250.9	396
594	920.5	846.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	398
596	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	400
598	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	402
600	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	404
602	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	406
604	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	408
606	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	410
608	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	412
610	1049.9	980.2	937	1040.7	912.5	1299.2	1414.1	1314.7	1250.9	414
612	920.5	846.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	416
614	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	418
616	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	420
618	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	422
620	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	424
622	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	426
624	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	428
626	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	430
628	1049.9	980.2	937	1040.7	912.5	1299.2	1414.1	1314.7	1250.9	432
630	920.5	846.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	434
632	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	436
634	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	438
636	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	440
638	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	442
640	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	444
642	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	446
644	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	448
646	1049.9	980.2	937	1040.7	912.5	1299.2	1414.1	1314.7	1250.9	450
648	920.5	846.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	452
650	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	454
652	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	456
654	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	458
656	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	460
658	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	462
660	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	464
662	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	466
664	1049.9	980.2	937	1040.7	912.5	1299.2	1414.1	1314.7	1250.9	468
666	920.5	846.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	470
668	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	472
670	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	474
672	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	476
674	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	478
676	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	480
678	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	482
680	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	484
682	1049.9	980.2	937	1040.7	912.5	1299.2	1414.1	1314.7	1250.9	486
684	920.5	846.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	488
686	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	490
688	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	492
690	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	494
692	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	496
694	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	498
696	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	500
698	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	502
700	1049.9	980.2	937	1040.7	912.5	1299.2	1414.1	1314.7	1250.9	504
702	920.5	846.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	506
704	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	508
706	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	510
708	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	512
710	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	514
712	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	516
714	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	518
716	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	520
718	1049.9	980.2	937	1040.7	912.5	1299.2	1414.1	1314.7	1250.9	522
720	920.5	846.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	524
722	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	526
724	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	528
726	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	530
728	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	532
730	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	534
732	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	536
734	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	538
736	1049.9	980.2	937	1040.7	912.5	1299.2	1414.1	1314.7	1250.9	540
738	920.5	846.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	542
740	944.5	863.8	937	912.2	805.6	1102.2	1226.8	1130.1	1073.8	544
742	881.9	799.9	937	845.4	744.5	1037.8	1181.1	1070.0	1013.4	546
744	1123.0	1043.0	937	1092.4	983.5	1281.4	1392.2	1307.1	1250.9	548
746	1070.1	993.3	937	1047.6	930.0	1230.1	1312.1	1248.1	1192.8	550
748	1221.6	1146.3	937	1187.9	1082.8	1378.9	1498.8	1407.6	1351.1	552
750	924.5	846.3	937	898.9	784.5	1084.0	1185.2	1108.7	1049.9	554
752	961.0	886.3	937	940.7	825.1	1209.2	1241.1	1214.4	1161.6	556
754	1049.9	980.2	937	1040.7	912.5	1299.2				

EXHIBIT 5.1 LATA-TO-LATA DISTANCES, Part 3

To LATA #	362	364	366	368	370	374	376	976	977	978	420	422	424	426	428	949
546	716.6	793.5	785.8	763.2	813.3	736.1	654.7	793.1	734.7	795.0	1084.3	1182.9	1236.1	1302.0	1342.9	1293.5
548	563.1	718.5	686.2	671.1	703.7	630.3	565.7	664.0	653.0	664.0	790.1	1005.3	1065.0	1128.9	1157.9	1115.5
550	674.6	842.0	808.5	794.0	824.6	752.1	689.1	794.4	776.5	781.3	1005.8	1099.5	1163.2	1225.6	1245.4	1208.8
552	517.7	726.1	678.5	669.3	688.0	620.5	571.2	653.6	659.0	633.5	834.8	927.5	992.6	1054.3	1072.0	1036.4
554	441.1	692.4	631.5	628.1	633.3	573.3	540.7	592.4	625.6	566.7	729.1	819.1	887.2	947.2	958.5	926.7
556	582.4	808.4	756.8	749.4	763.6	698.5	653.8	727.4	741.1	703.8	876.5	965.7	1034.6	1094.1	1101.8	1072.7
558	673.5	904.4	852.4	845.2	858.5	794.1	749.8	821.8	837.1	796.9	952.8	1038.9	1110.4	1168.1	1168.0	1144.0
560	614.1	883.2	818.7	817.2	817.1	760.9	732.6	776.9	816.6	744.3	850.6	931.1	1006.2	1060.6	1049.9	1032.7
562	551.5	836.4	766.2	767.7	760.8	709.4	689.8	719.3	771.0	683.3	769.7	848.7	924.5	978.1	965.9	949.6
564	793.2	1050.9	993.3	987.6	993.0	933.1	897.8	963.0	983.8	923.3	1027.0	1104.6	1181.2	1233.8	1215.8	1203.9
566	746.1	976.1	925.0	917.5	931.3	866.7	821.3	894.7	908.9	869.7	1019.4	1104.0	1176.7	1233.3	1222.2	1208.0
568	891.0	1156.5	1094.8	1092.2	1094.1	1036.8	1004.4	1054.1	1089.6	1021.5	1104.2	1177.0	1255.6	1305.3	1278.2	1272.6
570	597.5	844.3	786.7	782.0	789.7	728.4	691.0	750.5	777.2	723.7	867.2	952.7	1024.6	1082.0	1061.4	1057.6
572	745.9	921.0	866.2	872.3	901.4	829.6	767.8	834.6	855.3	855.7	1067.3	1159.2	1225.2	1286.5	1300.5	1267.6
574	510.8	208.1	301.0	271.6	344.5	324.1	285.2	376.3	236.4	428.0	780.8	863.5	924.5	924.5	932.9	948.2
576	640.4	341.9	435.2	405.6	478.7	456.8	409.9	510.4	369.3	561.9	914.0	995.3	992.6	1052.4	1146.9	1058.5
578	586.2	283.2	377.1	348.0	420.2	400.5	358.2	452.5	312.8	504.4	855.0	936.3	933.9	993.9	1104.5	1019.1
580	537.2	347.1	407.5	373.1	453.6	397.2	313.5	466.9	328.8	506.8	878.1	972.3	989.4	1054.7	1146.9	1069.5
582	393.7	203.3	253.0	218.8	298.7	241.9	162.2	311.3	174.7	352.1	724.3	817.0	833.9	899.3	991.5	913.9
584	318.4	49.0	109.3	76.8	155.5	128.2	117.0	181.8	41.0	232.3	593.8	681.3	690.3	754.2	854.0	772.8
586	365.5	102.5	172.8	139.3	219.3	183.1	140.5	243.1	97.6	291.7	656.9	745.1	754.6	818.5	918.0	837.0
588	780.5	494.8	586.2	555.4	630.6	603.3	546.7	660.5	516.8	710.9	1067.5	1149.7	1147.5	1207.2	1318.2	1232.7
590	895.9	646.8	730.5	697.3	795.8	746.7	664.4	800.5	655.0	847.2	1214.9	1302.3	1307.3	1369.3	1474.1	1391.2
592	640.9	377.3	449.1	414.8	495.8	446.7	369.4	514.1	370.8	557.5	929.0	1019.9	1032.3	1096.6	1193.8	1114.1
594	465.0	325.0	366.7	333.4	410.5	345.3	254.6	416.4	290.7	450.4	820.5	916.2	939.1	1005.5	1091.0	1018.8
596	450.9	452.3	490.5	457.9	533.0	464.2	371.2	535.2	416.1	564.7	929.4	1026.8	1054.5	1121.3	1201.3	1130.0
598	481.2	369.3	404.3	371.9	446.6	377.9	285.0	448.9	330.5	479.2	845.6	942.6	968.9	1035.7	1117.2	1045.0
600	1341.0	1151.2	1222.9	1188.4	1269.4	1215.0	1129.5	1284.2	1144.2	1324.2	1598.6	1790.1	1806.1	1870.0	1964.8	1887.0
602	975.5	975.5	1045.8	1011.3	1092.3	1037.4	951.7	1107.1	967.0	1146.5	1518.6	1612.4	1628.9	1693.8	1787.1	1709.6
604	1485.7	1345.9	1405.4	1371.2	1450.6	1387.6	1296.5	1458.8	1327.2	1491.8	1857.9	1955.4	1981.9	2047.8	2129.9	2058.0
606	1576.1	1382.4	1455.9	1421.4	1502.4	1449.2	1364.2	1518.5	1377.3	1568.6	1930.9	2024.3	2039.1	2103.6	2198.8	2120.5
608	990.3	851.3	907.2	873.2	952.1	888.4	797.2	959.5	829.3	992.5	1359.6	1456.6	1481.9	1548.4	1631.3	1558.8
610	875.7	811.0	845.2	813.6	885.8	813.4	719.8	883.0	773.0	905.9	1255.5	1355.0	1391.2	1458.6	1526.9	1462.1
612	818.9	818.9	847.1	816.7	885.9	811.8	718.7	880.1	777.6	899.6	1241.0	1340.9	1380.4	1447.8	1511.2	1449.0
614	1244.1	1150.7	1196.5	1163.5	1239.4	1170.2	1076.8	1240.9	1120.9	1267.6	1622.9	1722.1	1755.7	1823.0	1894.7	1826.3
616	983.1	1021.7	1028.6	1002.5	1060.7	983.5	896.1	1045.2	969.1	1052.6	1354.6	1453.5	1505.2	1571.3	1614.5	1554.0
618	1311.1	1343.7	1355.0	1328.1	1388.2	1311.1	1222.7	1373.6	1293.5	1381.6	1680.1	1778.6	1831.9	1897.8	1937.1	1889.2
620	1277.7	1336.1	1339.9	1314.7	1370.4	1293.0	1207.5	1352.7	1282.4	1366.6	1639.5	1736.8	1793.6	1858.6	1891.2	1847.3
622	1830.2	1685.5	1747.4	1713.1	1792.9	1730.9	1640.2	1802.0	1669.0	1835.7	2202.3	2299.7	2324.9	2391.2	2474.2	2402.0
624	1819.0	1657.1	1723.4	1688.9	1769.4	1710.2	1621.1	1780.9	1644.6	1816.9	2186.5	2282.7	2304.3	2370.1	2457.5	2383.1
626	1825.0	1639.7	1711.8	1677.3	1758.3	1703.5	1617.2	1773.2	1633.0	1812.3	2184.2	2278.5	2295.0	2359.7	2453.2	2375.8
628	1603.8	1411.6	1484.8	1450.4	1531.4	1477.8	1392.6	1547.2	1406.2	1587.2	1959.4	2052.9	2068.1	2132.5	2227.5	2149.3
630	1661.9	1577.2	1622.8	1589.9	1665.4	1595.6	1502.0	1666.1	1547.5	1691.4	2042.1	2141.7	2178.0	2245.4	2313.1	2249.0
632	1436.6	1412.5	1440.5	1410.3	1478.8	1403.9	1311.4	1471.3	1371.2	1487.9	1815.1	1915.0	1960.5	2027.6	2080.7	2024.7
634	1814.3	1746.4	1788.0	1755.6	1829.6	1758.2	1664.6	1828.1	1713.9	1851.0	2194.9	2294.8	2334.4	2401.8	2464.4	2403.2
636	1768.7	1678.0	1725.6	1692.5	1768.6	1699.5	1606.0	1770.1	1649.8	1796.3	2148.7	2248.3	2283.7	2351.9	2419.9	2355.2
638	1757.6	1681.9	1725.1	1692.9	1767.6	1693.8	1603.2	1767.0	1650.7	1791.1	2138.2	2238.0	2276.1	2343.4	2408.4	2345.8
640	1684.1	1636.5	1672.1	1640.6	1712.3	1639.1	1545.8	1708.0	1600.0	1728.0	2084.1	2164.8	2216.0	2274.1	2331.8	2273.3
642	1640.0	1633.2	1657.3	1627.8	1694.3	1618.6	1526.9	1684.8	1589.7	1698.7	2015.4	2114.8	2164.0	2230.6	2277.4	2225.2
644	1606.1	1621.5	1639.2	1611.0	1674.2	1597.6	1507.5	1661.9	1574.5	1698.7	2042.1	2141.8	2194.3	2245.4	2303.2	2247.8
646	1559.8	1632.1	1662.6	1632.1	1701.2	1626.6	1533.9	1694.3	1592.6	1711.2	2038.1	2137.9	2183.9	2250.9	2303.2	2247.8
648	1786.3	1734.1	1771.4	1739.7	1812.0	1739.2	1645.7	1808.4	1698.7	1829.0	2156.5	2266.5	2308.7	2376.0	2434.4	2375.5
650	1752.2	1684.9	1726.2	1693.8	1767.7	1696.2	1602.6	1766.1	1652.1	1788.9	2132.7	2232.7	2273.9	2342.7	2402.4	2341.1
652	1751.7	1719.9	1751.4	1720.6	1790.5	1716.2	1623.3	1784.2	1680.8	1801.8	2130.3	2230.1	2275.7	2342.7	2395.8	2339.9
654	1549.3	1553.1	1573.8	1545.0	1609.9	1533.6	1442.7	1598.9	1507.7	1611.2	1923.1	2022.3	2072.7	2139.2	2183.8	2132.6

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 3
LATA-to-LATA Distances(miles)

To LATA #	951	430	432	434	436	438	440	442	444	446	448	450	452	454	456	458
546	1347.9	1098.0	1252.8	1184.0	1263.2	998.0	1210.6	1137.7	1046.8	1054.1	909.9	1001.8	1217.2	1198.3	1281.3	1282.3
548	1176.3	916.9	1068.7	997.9	1070.9	807.6	1013.5	947.4	846.1	858.4	699.8	792.4	1012.5	990.9	1073.8	1073.3
550	1273.5	1009.4	1157.6	1085.4	1151.9	892.8	1089.2	1031.5	915.0	973.3	751.9	846.4	1076.2	1048.8	1131.4	1125.7
552	1102.3	836.9	984.3	912.1	978.4	719.3	916.3	858.0	743.4	764.0	586.5	680.4	906.5	881.3	964.2	961.0
554	995.6	727.6	871.9	799.1	861.9	605.9	798.1	743.3	623.7	647.2	466.5	560.0	786.0	760.7	843.6	840.6
556	1142.6	874.0	1016.2	943.1	1003.1	749.9	935.2	885.0	756.9	787.4	585.4	680.1	913.7	883.2	965.5	957.5
558	1216.6	946.8	1084.4	1011.0	1063.8	818.8	993.2	951.6	811.8	850.3	629.6	723.5	961.5	926.3	1007.2	994.7
560	1109.0	839.1	989.2	896.0	941.2	706.6	867.5	834.3	684.6	730.7	496.1	588.6	828.2	790.3	870.3	855.8
562	1026.5	756.9	885.6	812.4	857.0	623.9	783.3	760.4	600.4	643.0	413.0	506.1	745.2	708.4	789.0	776.1
564	1282.1	1013.1	1137.9	1015.3	1103.3	879.0	1026.3	1002.0	843.1	897.0	647.9	735.6	974.9	931.3	1007.8	987.0
566	1281.9	1011.6	1146.8	1073.4	1122.7	882.1	1050.2	1013.0	867.7	910.8	680.7	773.3	1012.8	974.8	1054.6	1039.3
568	1353.1	1086.5	1203.8	1131.9	1162.2	950.9	1082.7	1067.6	901.0	962.0	702.7	785.1	1020.9	973.1	1045.9	1020.4
570	1130.5	860.6	997.8	924.4	977.4	732.3	907.2	865.0	726.2	763.8	546.9	640.6	877.6	843.7	925.1	914.2
572	1334.7	1068.2	1213.8	1141.1	1203.3	947.9	1137.7	1085.3	960.2	988.4	788.6	883.3	1117.4	1086.5	1168.6	1159.7
574	953.0	826.1	956.5	826.1	920.3	826.5	1025.1	916.8	764.7	902.7	974.5	1020.1	1109.0	1130.9	1193.1	1224.9
576	1043.5	961.7	1078.2	1051.3	1155.5	980.5	1166.1	1056.7	1124.3	1055.4	1150.5	1190.0	1258.9	1286.2	1343.1	1378.4
578	1233.7	1112.7	1242.9	1207.0	1311.8	1088.9	1311.3	1202.9	1243.7	1185.4	1237.0	1290.2	1392.2	1411.8	1476.1	1506.3
580	1398.7	1257.2	1394.9	1353.5	1457.6	1238.3	1449.4	1343.1	1364.7	1314.6	1334.3	1396.6	1521.1	1534.9	1603.9	1630.2
582	1021.0	900.8	1029.4	994.5	1099.3	902.8	1109.5	1060.9	1041.2	1036.7	1102.3	1150.7	1243.1	1264.7	1327.2	1358.8
584	1089.7	917.1	1063.0	1014.6	1116.8	884.5	1100.9	997.4	1005.3	960.1	970.0	1032.8	1165.2	1175.9	1247.1	1271.2
586	934.7	763.2	907.9	860.5	983.3	736.2	949.8	862.2	845.1	812.3	843.3	899.4	1018.6	1032.3	1101.2	1127.5
588	787.2	636.9	773.8	732.7	837.1	630.8	833.1	725.3	768.4	707.1	782.9	825.3	913.8	934.8	997.8	1029.0
590	851.3	699.4	837.5	795.6	899.8	688.9	894.1	786.7	823.9	765.4	828.8	876.5	972.3	991.6	1056.1	1086.1
592	1233.7	1112.7	1242.9	1207.0	1311.8	1088.9	1311.3	1202.9	1243.7	1185.4	1237.0	1290.2	1392.2	1411.8	1476.1	1506.3
594	1398.7	1257.2	1394.9	1353.5	1457.6	1238.3	1449.4	1343.1	1364.7	1314.6	1334.3	1396.6	1521.1	1534.9	1603.9	1630.2
596	1021.0	900.8	1029.4	994.5	1099.3	902.8	1109.5	1060.9	1041.2	1036.7	1102.3	1150.7	1243.1	1264.7	1327.2	1358.8
598	1089.7	917.1	1063.0	1014.6	1116.8	884.5	1100.9	997.4	1005.3	960.1	970.0	1032.8	1165.2	1175.9	1247.1	1271.2
600	934.7	763.2	907.9	860.5	983.3	736.2	949.8	862.2	845.1	812.3	843.3	899.4	1018.6	1032.3	1101.2	1127.5
602	787.2	636.9	773.8	732.7	837.1	630.8	833.1	725.3	768.4	707.1	782.9	825.3	913.8	934.8	997.8	1029.0
604	851.3	699.4	837.5	795.6	899.8	688.9	894.1	786.7	823.9	765.4	828.8	876.5	972.3	991.6	1056.1	1086.1
606	1233.7	1112.7	1242.9	1207.0	1311.8	1088.9	1311.3	1202.9	1243.7	1185.4	1237.0	1290.2	1392.2	1411.8	1476.1	1506.3
608	1398.7	1257.2	1394.9	1353.5	1457.6	1238.3	1449.4	1343.1	1364.7	1314.6	1334.3	1396.6	1521.1	1534.9	1603.9	1630.2
610	1021.0	900.8	1029.4	994.5	1099.3	902.8	1109.5	1060.9	1041.2	1036.7	1102.3	1150.7	1243.1	1264.7	1327.2	1358.8
612	1089.7	917.1	1063.0	1014.6	1116.8	884.5	1100.9	997.4	1005.3	960.1	970.0	1032.8	1165.2	1175.9	1247.1	1271.2
614	934.7	763.2	907.9	860.5	983.3	736.2	949.8	862.2	845.1	812.3	843.3	899.4	1018.6	1032.3	1101.2	1127.5
616	787.2	636.9	773.8	732.7	837.1	630.8	833.1	725.3	768.4	707.1	782.9	825.3	913.8	934.8	997.8	1029.0
618	851.3	699.4	837.5	795.6	899.8	688.9	894.1	786.7	823.9	765.4	828.8	876.5	972.3	991.6	1056.1	1086.1
620	1233.7	1112.7	1242.9	1207.0	1311.8	1088.9	1311.3	1202.9	1243.7	1185.4	1237.0	1290.2	1392.2	1411.8	1476.1	1506.3
622	1398.7	1257.2	1394.9	1353.5	1457.6	1238.3	1449.4	1343.1	1364.7	1314.6	1334.3	1396.6	1521.1	1534.9	1603.9	1630.2
624	1021.0	900.8	1029.4	994.5	1099.3	902.8	1109.5	1060.9	1041.2	1036.7	1102.3	1150.7	1243.1	1264.7	1327.2	1358.8
626	1089.7	917.1	1063.0	1014.6	1116.8	884.5	1100.9	997.4	1005.3	960.1	970.0	1032.8	1165.2	1175.9	1247.1	1271.2
628	934.7	763.2	907.9	860.5	983.3	736.2	949.8	862.2	845.1	812.3	843.3	899.4	1018.6	1032.3	1101.2	1127.5
630	787.2	636.9	773.8	732.7	837.1	630.8	833.1	725.3	768.4	707.1	782.9	825.3	913.8	934.8	997.8	1029.0
632	851.3	699.4	837.5	795.6	899.8	688.9	894.1	786.7	823.9	765.4	828.8	876.5	972.3	991.6	1056.1	1086.1
634	1233.7	1112.7	1242.9	1207.0	1311.8	1088.9	1311.3	1202.9	1243.7	1185.4	1237.0	1290.2	1392.2	1411.8	1476.1	1506.3
636	1398.7	1257.2	1394.9	1353.5	1457.6	1238.3	1449.4	1343.1	1364.7	1314.6	1334.3	1396.6	1521.1	1534.9	1603.9	1630.2
638	1021.0	900.8	1029.4	994.5	1099.3	902.8	1109.5	1060.9	1041.2	1036.7	1102.3	1150.7	1243.1	1264.7	1327.2	1358.8
640	1089.7	917.1	1063.0	1014.6	1116.8	884.5	1100.9	997.4	1005.3	960.1	970.0	1032.8	1165.2	1175.9	1247.1	1271.2
642	934.7	763.2	907.9	860.5	983.3	736.2	949.8	862.2	845.1	812.3	843.3	899.4	1018.6	1032.3	1101.2	1127.5
644	787.2	636.9	773.8	732.7	837.1	630.8	833.1	725.3	768.4	707.1	782.9	825.3	913.8	934.8	997.8	1029.0
646	851.3	699.4	837.5	795.6	899.8	688.9	894.1	786.7	823.9	765.4	828.8	876.5	972.3	991.6	1056.1	1086.1
648	1233.7	1112.7	1242.9	1207.0	1311.8	1088.9	1311.3	1202.9	1243.7	1185.4	1237.0	1290.2	1392.2	1411.8	1476.1	1506.3
650	1398.7	1257.2	1394.9	1353.5	1457.6	1238.3	1449.4	1343.1	1364.7	1314.6	1334.3	1396.6	1521.1	1534.9	1603.9	1630.2
652	1021.0	900.8	1029.4	994.5	1099.3	902.8	1109.5	1060.9	1041.2	1036.7	1102.3	1150.7	1243.1	1264.7	1327.2	1358.8
654	1089.7	917.1	1063.0	1014.6	1116.8	884.5	1100.9	997.4	1005.3	960.1	970.0	1032.8	1165.2	1175.9	1247.1	1271.2
656	934.7	763.2	907.9	860.5	983.3	736.2	949.8	862.2	845.1	812.3	843.3	899.4	1018.6	1032.3	1101.2	1127.5
658	787.2	636.9	773.8	732.7	837.1	630.8	833.1	725.3	768.4	707.1	782.9	825.3	913.8	934.8	997.8	1029.0
660	851.3	699.4	837.5	795.6	899.8	688.9	894.1	786.7	823.9	765.4	828.8	876.5	972.3	991.6	1056.1	1086.1
662	1233.7	1112.7	1242.9	1207.0	1311.8	1088.9	1311.3	1202.9	1243.7	1185.4	1237.0	1290.2	1392.2	1411.8	1476.1	1506.3
664	1398.7	1257.2	1394.9	1353.5	1457.6	1238.3	1449.4	1343.1	1364.7	1314.6	1334.3	1396.6	1521.1	1534.9	1603.9	1630.2
666	1021.0	900.8	1029.4	994.5	1099.3	902.8	1109.5	1060.9	1041.2	1036.7	1102.3	1150.7	1243.1	1264.7	1327.2	1358.8
668	1089.7	917.1	1063.0	1014.6	1116.8	884.5	1100.9	997.4	1005.3	960.1	970.0	1032.8	1165.2	1175.9	1247.1	1271.2
670	934.7	763.2	907.9	860.5	983.3	736.2	949.8	862.2	845.1	812.3	843.3	899.4	1018.6	1032.3	1101.2	1127.5
672	787.2	636.9	773.8	732.7	837.1	630.8	833.1	725.3	768.4	707.1	782.9	825.3	913.8	934.8	997.8	1029.0
674	851.3	699.4	837.5	795.6	899.8	688.9	894.1	786.7	823.9	765.4	828.8	876.5	972.3	991.6	1056.1	1086.1
676	1233.7	1112.7	1242.9	1207.0	1311.8	1088.9	1311.3	1202.9	1243.7	1185.4	1237.0	1290.2	1392.2	1411.8	1476.1	1506.3
678	1398.7	1257.2	1394.9	1353.5												

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 3

To LATA #	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
546	134.8	131.3	939	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969
548	1223.2	1107.5	1069.3	1242.5	1069.3	911.9	970.2	665.3	846.7	470	471	472	473	474	475	476	477	478	479	480	
550	1263.7	1146.3	921.6	1037.3	862.2	766.9	827.6	485.8	781.0	762.3	834.1	834.1	752.3	834.1	834.1	834.1	834.1	834.1	834.1	834.1	
552	1105.8	989.7	753.4	916.3	721.7	721.7	776.3	417.7	614.2	675.2	753.9	753.9	675.2	753.9	753.9	753.9	753.9	753.9	753.9	753.9	
554	987.6	871.8	632.8	796.9	639.8	639.8	680.4	324.1	518.9	568.9	661.7	661.7	568.9	661.7	661.7	661.7	661.7	661.7	661.7	661.7	
556	1090.7	974.3	757.0	907.1	757.0	757.0	834.5	471.1	666.4	716.4	809.6	809.6	716.4	809.6	809.6	809.6	809.6	809.6	809.6	809.6	
558	1115.0	999.1	804.6	938.9	804.6	804.6	921.4	557.4	750.6	793.3	888.9	888.9	793.3	888.9	888.9	888.9	888.9	888.9	888.9	888.9	
560	972.8	857.1	671.3	798.3	671.3	671.3	727.6	485.2	667.5	694.0	793.0	793.0	694.0	793.0	793.0	793.0	793.0	793.0	793.0	793.0	
562	999.0	882.8	720.6	820.6	720.6	720.6	843.2	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
564	1081.2	965.6	820.1	922.5	820.1	820.1	908.1	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
566	1150.9	1035.8	880.4	980.4	880.4	880.4	992.6	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
568	1096.9	987.9	855.9	951.6	855.9	855.9	992.6	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
570	1040.2	923.9	760.8	860.5	760.8	760.8	843.2	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
572	1280.0	1171.8	961.5	1107.5	961.5	961.5	1040.2	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
574	1418.7	1329.6	1032.4	1232.7	1032.4	1032.4	1107.5	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
576	1572.8	1469.4	1195.3	1392.5	1195.3	1195.3	1232.7	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
578	1552.5	1462.6	1164.9	1365.7	1164.9	1164.9	1232.7	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
580	1495.2	1406.1	1108.8	1309.2	1108.8	1108.8	1232.7	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
582	1459.9	1360.1	1062.7	1265.2	1062.7	1062.7	1232.7	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
584	1318.3	1221.7	925.2	1128.8	925.2	925.2	1062.7	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
586	1222.6	1133.3	890.1	1036.4	890.1	890.1	1062.7	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
588	1599.4	1507.1	1308.7	1510.5	1308.7	1308.7	1507.1	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
590	1820.6	1722.5	1424.1	1627.1	1424.1	1424.1	1627.1	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
592	1523.3	1425.0	1127.0	1327.1	1127.0	1127.0	1327.1	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
594	1383.0	1281.4	985.1	1187.2	985.1	985.1	1187.2	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
596	1461.4	1355.8	1064.0	1263.6	1064.0	1064.0	1263.6	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
598	1391.0	1287.3	993.0	1194.1	993.0	993.0	1194.1	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
600	2243.4	2136.1	1846.8	2045.4	1846.8	1846.8	2045.4	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
602	2069.1	1962.7	1672.0	1871.3	1672.0	1672.0	1871.3	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
604	2349.5	2237.6	2151.9	2349.5	2151.9	2151.9	2349.5	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
606	2476.6	2368.7	2278.5	2476.6	2278.5	2278.5	2476.6	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
608	1874.5	1765.4	1480.2	1676.3	1480.2	1480.2	1676.3	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
610	1715.0	1602.7	1328.1	1517.6	1328.1	1328.1	1517.6	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
612	1680.3	1567.1	1297.1	1483.7	1297.1	1297.1	1483.7	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
614	2077.8	1964.3	1694.5	1881.3	1694.5	1694.5	1881.3	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
616	1693.1	1576.9	1301.4	1494.1	1301.4	1301.4	1494.1	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
618	1980.5	1864.2	1578.6	1779.1	1578.6	1578.6	1779.1	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
620	1909.0	1792.9	1578.6	1779.1	1578.6	1578.6	1779.1	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
622	2688.2	2575.5	2491.1	2688.2	2491.1	2491.1	2688.2	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
624	2692.4	2580.9	2494.5	2692.4	2494.5	2494.5	2692.4	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
626	2716.4	2606.9	2518.2	2716.4	2518.2	2518.2	2716.4	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
628	2503.0	2394.9	2304.9	2503.0	2394.9	2394.9	2503.0	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
630	2463.2	2347.9	2269.5	2463.2	2347.9	2347.9	2269.5	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
632	2176.2	2060.0	1987.0	2176.2	2060.0	2060.0	1987.0	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
634	2587.6	2471.7	2396.6	2587.6	2471.7	2471.7	2396.6	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
636	2572.3	2457.0	2378.6	2572.3	2457.0	2457.0	2378.6	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
638	2543.4	2427.7	2351.2	2543.4	2427.7	2427.7	2351.2	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
640	2437.8	2321.6	2248.2	2437.8	2321.6	2321.6	2248.2	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
642	2338.2	2221.8	2153.8	2338.2	2221.8	2221.8	2153.8	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
644	2271.9	2155.7	2090.7	2271.9	2155.7	2155.7	2090.7	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
646	2366.6	2270.2	2199.5	2366.6	2270.2	2270.2	2199.5	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
648	2540.3	2424.1	2351.0	2540.3	2424.1	2424.1	2351.0	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
650	2527.9	2412.0	2336.5	2527.9	2412.0	2412.0	2336.5	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
652	2479.2	2362.8	2292.3	2479.2	2362.8	2362.8	2292.3	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	
654	2238.7	2122.3	2054.7	2238.7	2122.3	2122.3	2054.7	418.7	614.5	614.5	714.1	714.1	614.5	714.1	714.1	714.1	714.1	714.1	714.1	714.1	

EXHIBIT 5.1 LATA-TO-LATA DISTANCES, Part 3
LATA-to-LATA Distances (miles)

To LATA *	482	484	486	488	490	492	520	521	522	524	526	528	530	532	534	536
546	988.0	811.0	500.3	664.9	773.7	699.2	682.9	580.5	495.4	478.8	418.6	542.6	562.4	302.0	428.3	536
548	491.0	599.3	289.2	453.4	561.4	486.9	561.0	472.9	367.5	478.8	250.7	357.6	369.8	265.9	383.4	244.3
550	557.3	641.4	349.7	480.7	596.8	523.0	680.9	595.4	488.5	536.9	364.4	457.0	462.1	335.6	431.2	119.4
552	385.6	482.6	178.2	331.3	441.4	356.6	542.5	471.3	360.1	446.9	222.3	291.2	291.8	335.6	431.2	241.9
554	266.0	363.8	58.3	223.3	326.3	252.2	490.2	439.3	332.1	450.5	197.9	209.1	196.9	383.9	450.7	187.4
556	403.0	475.9	202.4	308.6	425.7	352.6	618.4	553.0	441.9	534.3	302.5	350.8	343.2	421.7	519.3	258.1
558	467.6	517.6	281.3	342.6	460.4	392.4	713.5	649.0	537.9	627.9	398.5	441.3	430.2	506.8	610.4	271.4
560	357.6	383.9	214.2	208.5	323.6	260.4	676.7	631.4	524.7	640.3	389.7	388.7	366.5	553.5	635.7	409.4
562	276.7	300.8	166.8	125.1	242.0	176.5	624.5	590.1	488.7	615.8	362.2	335.6	308.0	551.5	618.6	418.0
564	294.3	330.3	391.4	473.7	422.4	444.4	849.9	796.3	686.7	788.2	547.7	564.9	545.2	674.9	774.6	523.3
566	530.6	568.4	351.4	392.9	508.2	441.4	786.3	720.6	609.6	695.8	470.4	513.8	501.9	567.7	675.8	416.1
568	615.6	634.7	491.4	442.5	532.7	492.3	953.0	902.6	793.6	897.0	655.1	665.8	643.8	783.7	883.7	631.6
570	381.0	434.7	199.0	261.4	379.7	303.6	646.0	589.5	479.6	583.5	340.6	365.9	351.2	482.3	573.2	334.2
572	604.9	678.4	399.7	507.9	626.0	554.2	787.2	673.4	565.6	616.2	438.4	523.4	524.8	460.3	583.2	321.3
574	811.2	952.0	971.3	943.4	913.3	930.7	387.9	373.1	467.9	354.1	599.4	634.7	670.7	501.2	377.8	642.1
576	995.9	1134.4	979.5	1131.9	1155.4	1118.0	556.7	561.5	657.4	540.3	788.3	823.5	859.0	675.8	558.2	821.8
578	931.6	1074.7	892.6	1064.7	1090.3	1045.7	462.9	441.9	573.1	442.9	696.0	702.1	738.7	562.1	451.8	711.3
580	882.9	1024.8	852.8	1010.8	1042.4	998.9	462.9	441.9	573.1	442.9	696.0	702.1	738.7	562.1	451.8	711.3
582	775.6	922.6	698.1	873.1	926.8	872.7	419.9	348.6	397.9	251.8	498.0	575.3	613.8	332.2	203.9	467.1
584	662.5	807.4	620.3	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
586	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
588	666.7	806.7	656.9	803.4	827.1	788.5	242.2	234.2	337.0	249.2	474.1	495.7	530.5	418.9	289.9	544.0
590	1056.2	1201.7	995.4	1166.6	1212.1	1162.5	656.2	614.6	685.3	544.1	795.6	862.7	900.8	628.7	538.3	780.6
592	846.8	993.7	771.7	946.4	988.9	945.5	478.6	414.9	469.9	324.4	571.6	647.8	626.0	401.5	312.3	792.5
594	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
596	662.5	807.4	620.3	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
598	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
600	666.7	806.7	656.9	803.4	827.1	788.5	242.2	234.2	337.0	249.2	474.1	495.7	530.5	418.9	289.9	544.0
602	1056.2	1201.7	995.4	1166.6	1212.1	1162.5	656.2	614.6	685.3	544.1	795.6	862.7	900.8	628.7	538.3	780.6
604	846.8	993.7	771.7	946.4	988.9	945.5	478.6	414.9	469.9	324.4	571.6	647.8	626.0	401.5	312.3	792.5
606	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
608	662.5	807.4	620.3	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
610	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
612	666.7	806.7	656.9	803.4	827.1	788.5	242.2	234.2	337.0	249.2	474.1	495.7	530.5	418.9	289.9	544.0
614	1056.2	1201.7	995.4	1166.6	1212.1	1162.5	656.2	614.6	685.3	544.1	795.6	862.7	900.8	628.7	538.3	780.6
616	846.8	993.7	771.7	946.4	988.9	945.5	478.6	414.9	469.9	324.4	571.6	647.8	626.0	401.5	312.3	792.5
618	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
620	662.5	807.4	620.3	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
622	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
624	666.7	806.7	656.9	803.4	827.1	788.5	242.2	234.2	337.0	249.2	474.1	495.7	530.5	418.9	289.9	544.0
626	1056.2	1201.7	995.4	1166.6	1212.1	1162.5	656.2	614.6	685.3	544.1	795.6	862.7	900.8	628.7	538.3	780.6
628	846.8	993.7	771.7	946.4	988.9	945.5	478.6	414.9	469.9	324.4	571.6	647.8	626.0	401.5	312.3	792.5
630	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
632	662.5	807.4	620.3	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
634	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
636	666.7	806.7	656.9	803.4	827.1	788.5	242.2	234.2	337.0	249.2	474.1	495.7	530.5	418.9	289.9	544.0
638	1056.2	1201.7	995.4	1166.6	1212.1	1162.5	656.2	614.6	685.3	544.1	795.6	862.7	900.8	628.7	538.3	780.6
640	846.8	993.7	771.7	946.4	988.9	945.5	478.6	414.9	469.9	324.4	571.6	647.8	626.0	401.5	312.3	792.5
642	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
644	662.5	807.4	620.3	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
646	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
648	666.7	806.7	656.9	803.4	827.1	788.5	242.2	234.2	337.0	249.2	474.1	495.7	530.5	418.9	289.9	544.0
650	1056.2	1201.7	995.4	1166.6	1212.1	1162.5	656.2	614.6	685.3	544.1	795.6	862.7	900.8	628.7	538.3	780.6
652	846.8	993.7	771.7	946.4	988.9	945.5	478.6	414.9	469.9	324.4	571.6	647.8	626.0	401.5	312.3	792.5
654	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
656	662.5	807.4	620.3	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
658	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
660	666.7	806.7	656.9	803.4	827.1	788.5	242.2	234.2	337.0	249.2	474.1	495.7	530.5	418.9	289.9	544.0
662	1056.2	1201.7	995.4	1166.6	1212.1	1162.5	656.2	614.6	685.3	544.1	795.6	862.7	900.8	628.7	538.3	780.6
664	846.8	993.7	771.7	946.4	988.9	945.5	478.6	414.9	469.9	324.4	571.6	647.8	626.0	401.5	312.3	792.5
666	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
668	662.5	807.4	620.3	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
670	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
672	666.7	806.7	656.9	803.4	827.1	788.5	242.2	234.2	337.0	249.2	474.1	495.7	530.5	418.9	289.9	544.0
674	1056.2	1201.7	995.4	1166.6	1212.1	1162.5	656.2	614.6	685.3	544.1	795.6	862.7	900.8	628.7	538.3	780.6
676	846.8	993.7	771.7	946.4	988.9	945.5	478.6	414.9	469.9	324.4	571.6	647.8	626.0	401.5	312.3	792.5
678	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
680	662.5	807.4	620.3	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
682	631.2	807.4	640.1	776.4	819.7	773.2	271.9	220.0	299.9	177.6	426.0	473.7	511.1	330.8	203.9	467.1
684	666.7	806.7	656.9	803.4	827.1	788.5	242.2	234.2	337.0	249.2	474					

EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 3

To LATA *	538	540	542	544	546	548	550	552	554	556	558	560	562	564	566	568
538	334.6	356.0	219.2	110.9	0.0	212.3	224.2	333.7	447.9	376.8	413.1	528.0	570.7	567.6	440.9	566
540	207.3	488.5	246.7	196.3	212.3	0.0	123.6	123.0	236.7	189.8	261.6	335.0	365.4	567.6	440.9	566
542	330.7	398.5	140.7	146.5	224.2	123.6	0.0	173.5	291.4	173.0	261.6	314.5	370.5	420.9	219.1	566
544	259.5	689.7	314.1	298.4	333.7	123.0	173.5	0.0	120.7	88.0	181.2	223.0	243.7	343.3	250.9	566
546	321.3	559.7	430.7	419.0	447.9	235.7	291.4	120.7	0.0	148.0	233.4	192.6	168.9	359.8	305.4	566
548	437.7	331.1	301.3	316.7	376.8	183.8	173.0	88.0	148.0	0.0	96.0	152.5	198.1	265.3	168.2	566
550	438.7	671.7	283.3	283.3	413.1	251.5	189.7	181.2	233.4	96.0	0.0	142.5	218.6	169.3	72.9	566
552	428.4	744.8	491.4	514.8	570.7	365.4	370.5	243.7	168.9	152.5	142.5	0.0	84.3	181.1	184.7	566
554	576.3	606.3	398.7	473.2	567.6	420.5	314.5	233.0	192.6	199.1	142.5	84.3	0.0	257.6	267.9	566
556	481.0	503.4	277.2	346.6	440.9	305.5	344.8	343.3	359.8	285.3	169.3	184.7	343.3	267.9	343.3	566
558	685.4	654.9	476.4	561.7	661.7	526.7	442.9	452.3	464.2	364.4	276.8	277.3	343.3	267.9	343.3	566
560	374.5	604.1	350.1	378.2	444.0	282.4	232.3	147.0	157.0	66.8	86.6	84.1	343.3	267.9	343.3	566
562	409.6	367.0	103.5	167.0	268.7	202.9	79.4	233.0	168.9	203.7	180.0	320.3	369.1	207.1	153.0	566
564	568.7	1129.4	970.9	871.6	780.0	881.3	943.3	883.1	893.4	888.3	982.0	969.1	956.5	307.1	181.4	566
566	753.3	1277.3	1138.5	1035.6	813.4	827.9	943.3	883.1	893.4	1074.2	1167.1	1177.9	1146.1	1141.8	1049.7	566
568	650.1	1150.1	1017.8	913.5	805.1	804.7	922.8	853.0	866.6	940.8	1033.2	1047.7	1016.8	1195.5	1126.4	566
570	619.7	1148.2	1004.0	901.7	805.1	804.7	922.8	853.0	866.6	940.8	1033.2	1047.7	1016.8	1195.5	1126.4	566
572	634.4	917.8	780.0	676.4	597.3	597.3	709.7	663.0	689.5	750.5	838.1	873.0	857.7	1005.2	899.0	566
574	392.1	975.5	802.5	706.5	621.2	586.5	707.9	624.5	623.9	711.9	805.6	815.2	786.1	965.7	873.2	566
576	467.7	1101.1	907.2	819.4	745.1	674.1	797.7	686.1	667.7	769.5	865.6	849.5	805.9	1014.7	936.7	566
578	459.9	1071.7	888.5	796.4	716.0	662.7	785.9	686.2	669.1	771.8	867.1	861.7	823.6	1021.4	937.1	566
580	734.5	1153.6	1053.9	946.2	839.3	890.7	997.9	962.2	988.9	1049.4	1135.5	1173.1	1156.7	1303.5	1195.4	566
582	688.7	1071.7	1013.3	904.9	794.1	889.5	982.1	979.8	1028.2	1063.2	1140.7	1200.1	1196.9	1309.9	1193.0	566
584	507.0	963.8	839.9	733.9	631.1	665.1	775.0	674.8	762.8	821.6	908.2	945.7	931.1	1075.9	968.9	566
586	349.0	871.5	716.7	615.4	521.9	520.5	636.5	557.7	602.3	667.5	756.7	787.1	770.3	922.7	820.0	566
588	350.5	771.1	643.1	532.6	433.9	479.6	583.8	562.1	609.6	646.9	728.3	781.2	778.1	897.4	785.1	566
590	321.1	822.2	671.0	568.6	473.6	481.5	595.1	547.7	578.7	636.0	722.2	789.6	747.5	889.5	783.8	566
592	1093.1	1060.0	1130.7	1039.5	942.8	1122.5	1165.8	1240.3	1328.2	1306.2	1354.4	1457.3	1493.0	1510.1	1343.9	566
594	925.7	967.4	1004.1	906.5	803.8	1025.3	1084.9	1167.1	1167.1	1186.1	1209.7	1305.0	1325.6	1370.1	1243.9	566
596	1182.9	972.4	1106.4	1034.2	957.2	1161.0	1175.4	1283.8	1387.5	1334.0	1364.6	1485.2	1525.6	1503.5	1378.5	566
598	1321.8	1221.6	1324.0	1239.8	1149.5	1388.7	1373.3	1458.6	1551.2	1519.4	1562.6	1671.9	1702.2	1712.9	1586.1	566
600	758.7	777.9	777.9	679.1	575.8	745.2	797.4	861.6	948.5	928.5	992.3	1080.1	1103.8	1142.2	1016.0	566
602	548.8	552.5	554.2	456.2	365.6	579.1	659.4	766.6	766.6	719.6	766.6	872.1	903.1	923.1	796.4	566
604	517.7	493.0	492.4	395.6	298.0	489.1	522.1	611.1	712.5	667.5	710.7	820.0	854.4	865.0	738.2	566
606	914.9	688.2	811.5	740.0	666.6	873.8	882.1	996.8	1104.2	1043.2	1070.7	1193.5	1237.0	1208.6	1083.7	566
608	602.9	347.0	398.0	292.9	271.9	473.8	720.0	587.5	706.8	609.4	614.7	749.6	807.4	736.1	615.1	566
610	895.8	265.6	521.6	537.1	562.2	733.4	657.0	828.1	947.9	822.8	794.8	937.3	1010.1	865.3	849.6	566
612	1522.3	1237.4	1406.6	1345.5	1278.6	1487.2	1489.8	1610.2	1717.9	1664.3	1676.3	1803.3	1849.4	1805.2	1663.1	566
614	1525.9	1286.2	1440.8	1373.4	1299.9	1505.0	1516.0	1627.9	1732.1	1676.7	1704.4	1827.4	1869.5	1839.3	1715.4	566
616	1554.3	1374.0	1509.7	1434.9	1353.6	1552.4	1574.3	1674.4	1773.3	1729.1	1763.9	1881.1	1917.8	1905.9	1780.4	566
618	1346.9	1235.5	1342.5	1259.5	1170.4	1361.1	1394.0	1481.5	1574.9	1541.4	1583.5	1693.9	1725.1	1732.7	1606.0	566
620	1316.2	920.9	1119.9	1076.2	1029.1	1241.3	1221.4	1361.6	1477.0	1392.5	1399.9	1590.6	1512.7	1396.3	1572.7	566
622	1066.8	583.4	801.7	774.7	749.4	956.4	916.5	1070.8	1190.1	1089.5	1084.9	1234.2	1286.6	1184.9	1073.4	566
624	1457.9	996.7	1218.9	1188.5	1154.5	1364.9	1331.6	1482.0	1600.1	1504.5	1502.0	1640.9	1600.9	1490.5	1238.2	566
626	1424.8	1022.3	1226.3	1184.1	1138.1	1350.3	1329.4	1470.5	1586.0	1500.7	1507.0	1642.6	1698.8	1617.7	1502.2	566
628	1405.6	970.7	1164.1	1148.2	1108.6	1320.3	1292.5	1438.8	1555.9	1464.8	1466.4	1603.9	1645.3	1411.3	1458.2	566
630	1263.7	703.0	949.0	942.4	935.6	1133.5	1076.5	1240.7	1361.4	1247.6	1229.1	1371.2	1404.4	1306.9	1206.4	566
632	1235.9	629.0	882.8	887.4	892.9	1082.0	1015.3	1183.7	1304.2	1183.7	1158.2	1300.7	1372.9	1225.7	1130.6	566
634	1288.9	785.5	1002.1	985.6	967.9	1172.0	1124.1	1283.5	1403.7	1296.6	1284.6	1425.9	1492.0	1371.8	1266.7	566
636	1423.3	932.9	1162.8	1138.8	1111.8	1320.0	1280.1	1434.8	1554.1	1453.1	1446.0	1586.2	1649.8	1431.2	1458.4	566
638	1396.2	943.7	1162.1	1129.8	1094.2	1304.9	1273.3	1422.4	1540.3	1446.0	1445.0	1583.4	1643.8	1431.2	1458.4	566
640	1381.6	854.6	1093.7	1078.5	1061.1	1265.1	1216.6	1376.5	1496.7	1389.0	1375.9	1517.4	1584.0	1460.5	1501.9	566
642	1171.2	602.8	849.2	844.4	841.0	1036.5	977.4	1142.5	1263.2	1148.2	1128.9	1271.2	1340.6	1206.9	1106.2	566

EXHIBIT 5.4 LATA-TO-LATA DISTANCES (miles)

To LATA #	570	561	620	624	626	628	630	632	634	636	638	640	644	646	958
546	444.0	268.7	780.0	937.5	813.4	605.1	576.9	621.2	745.1	839.3	794.1	631.1	521.9	439.9	473.6
548	252.4	202.9	761.3	940.0	827.9	604.7	597.3	586.5	674.1	890.7	889.5	665.1	520.5	479.6	481.5
550	232.9	79.4	881.7	1058.1	943.3	922.6	709.7	707.9	797.7	987.9	982.1	775.0	636.5	583.8	595.1
552	147.0	233.0	801.0	986.5	883.1	853.0	663.0	624.6	666.1	968.2	979.8	734.4	579.7	582.1	547.7
554	157.0	342.1	797.0	986.1	893.4	856.6	689.5	623.9	669.1	980.9	1028.2	762.8	602.3	609.6	578.7
556	68.8	203.7	888.3	1074.2	971.1	940.8	750.5	711.9	769.5	1049.4	1063.2	821.6	667.5	646.9	635.0
558	86.6	180.0	982.0	1167.1	1061.9	1033.2	838.1	805.5	865.5	1135.5	1140.7	908.2	756.7	728.3	722.2
560	141.3	389.1	956.5	1177.9	1083.1	1047.7	873.0	815.2	849.5	1173.1	1200.1	945.7	781.2	778.1	758.6
562	207.1	307.1	1141.8	1328.5	1226.3	1195.8	1005.2	965.7	1014.7	1303.5	1309.9	1075.9	922.7	897.4	885.5
564	163.0	181.4	1049.9	1233.6	1128.4	1099.2	899.8	873.2	936.7	1195.4	1193.0	968.9	820.0	785.1	783.8
566	314.7	394.9	1250.4	1437.3	1356.4	1304.5	1047.7	1074.4	1212.1	1412.0	1416.0	1184.5	1031.7	1004.9	998.2
568	0.0	247.9	936.1	1123.6	1020.2	1000.6	785.6	767.0	807.7	1107.0	1126.7	879.6	723.2	709.0	692.9
570	0.0	0.0	960.5	1135.9	1020.2	1000.6	785.6	767.0	807.7	1107.0	1126.7	879.6	723.2	709.0	692.9
572	247.9	960.5	0.0	189.6	134.2	136.3	223.4	176.6	196.3	286.7	446.2	315.6	258.2	366.4	467.4
574	936.1	1135.9	189.6	0.0	129.0	136.3	360.8	363.2	367.9	329.6	222.2	315.6	422.7	506.5	467.4
576	1023.9	1020.2	134.2	129.0	0.0	59.0	237.1	273.3	329.6	275.3	184.9	186.9	307.4	380.4	346.6
578	628	1000.6	76.5	135.3	59.0	0.0	230.5	232.0	272.0	220.8	213.7	197.1	287.6	377.5	346.6
580	607.7	785.6	223.4	360.8	237.1	230.5	364.4	502.7	621.3	478.8	300.1	73.6	88.1	147.0	116.0
582	760.5	787.0	176.6	363.2	273.3	232.8	300.1	502.7	621.3	478.8	300.1	207.2	121.9	249.2	168.0
584	807.7	876.9	196.3	367.9	329.6	275.3	300.1	502.7	621.3	478.8	300.1	342.5	278.4	352.9	321.8
586	814.5	865.3	145.9	329.6	275.3	220.8	300.1	502.7	621.3	478.8	300.1	278.4	225.9	352.9	321.8
588	1107.4	1071.0	286.7	222.2	154.9	213.7	300.1	502.7	621.3	478.8	300.1	227.9	286.6	414.3	414.6
590	1126.7	1048.3	446.2	411.8	328.6	362.8	364.4	502.7	621.3	478.8	300.1	297.5	448.5	419.3	456.7
592	879.6	743.8	214.9	315.6	186.9	197.1	88.1	121.9	278.4	225.9	352.9	161.5	161.5	127.3	186.7
594	709.0	656.7	366.4	506.5	380.4	377.5	147.0	249.2	405.5	352.9	414.3	197.3	0.0	0.0	86.4
596	692.9	671.6	307.2	467.4	348.6	333.1	116.0	168.0	321.8	272.2	414.3	186.7	49.7	86.4	0.0
598	1374.0	1206.4	965.6	945.1	863.6	910.4	817.8	979.3	940.6	564.9	534.3	774.7	878.1	783.8	860.0
600	1222.7	1071.5	793.5	786.7	693.0	741.5	640.2	795.7	940.6	564.9	534.3	774.7	700.4	608.1	683.0
602	1401.2	1197.2	1179.8	1180.4	1080.4	1135.0	999.8	1152.5	1306.2	1042.4	928.5	1007.0	1042.4	928.5	1013.0
604	1588.0	1406.5	1192.8	1158.1	1081.4	1134.0	1052.0	1207.3	1349.4	1285.2	938.6	1007.0	1113.1	1018.3	1094.9
606	997.3	843.8	698.9	746.5	630.0	665.4	504.1	654.6	809.9	748.9	534.3	485.4	543.1	430.4	514.1
608	788.3	621.9	706.2	805.9	678.1	696.2	484.6	608.0	764.1	711.5	526.9	499.2	486.1	358.8	442.8
610	562.2	562.2	729.6	840.7	712.0	725.7	506.3	618.4	772.0	722.6	581.4	528.9	496.9	370.9	450.8
612	1109.7	902.3	1012.7	1066.5	949.6	983.4	806.8	948.9	1106.4	1048.5	859.9	797.9	830.2	706.4	792.8
614	669.6	436.9	968.0	1098.4	969.5	975.7	747.3	831.4	972.7	954.6	857.1	782.9	716.7	601.7	667.1
616	941.0	693.5	1273.4	1386.4	1257.9	1272.0	1050.1	1148.8	1294.8	1252.2	1218.1	1075.3	1030.5	909.1	981.7
618	869.1	621.6	1282.0	1406.6	1277.6	1286.9	1060.2	1146.9	1287.1	1248.7	1250.3	1092.2	1032.0	915.6	982.5
620	1720.0	1502.9	1513.2	1508.1	1416.3	1464.0	1340.7	1494.4	1846.8	1584.1	1286.9	1309.9	1385.8	1272.9	1357.2
622	1743.5	1534.3	1477.8	1460.5	1374.9	1424.8	1315.9	1470.9	1620.4	1586.8	1238.8	1280.0	1366.6	1258.7	1341.1
624	1797.0	1599.1	1451.3	1415.7	1340.2	1393.1	1306.4	1461.9	1606.9	1541.8	1196.8	1263.5	1364.6	1264.9	1343.9
626	1610.0	1426.0	1222.3	1187.8	1111.1	1164.0	1080.6	1236.0	1378.5	1314.3	968.3	1036.0	1141.2	1046.6	1122.6
628	1454.2	1221.1	1434.9	1474.8	1363.6	1401.2	1232.6	1375.5	1539.1	1474.9	1259.9	1220.7	1256.7	1132.4	1218.6
630	1146.8	904.9	1306.7	1388.6	1264.9	1290.2	1087.1	1210.1	1366.0	1314.0	1195.1	1095.3	1088.2	961.1	1043.3
632	1562.9	1322.0	1610.4	1655.8	1542.9	1579.1	1404.1	1543.7	1701.3	1644.5	1442.2	1395.7	1423.6	1297.8	1383.7
634	1562.2	1287.9	1531.2	1583.9	1458.6	1495.0	1332.3	1477.1	1634.4	1575.6	1345.7	1317.7	1359.1	1235.7	1322.1
636	1524.7	1286.7	1542.8	1585.2	1479.3	1510.3	1338.4	1479.7	1637.3	1579.9	1370.8	1328.3	1360.1	1235.0	1321.2
638	1408.4	1051.7	1513.0	1573.0	1455.8	1487.1	1300.0	1433.2	1590.2	1535.7	1366.9	1298.4	1311.8	1184.7	1265.5
640	1299.1	983.9	1532.5	1593.6	1492.5	1517.3	1312.0	1422.4	1572.9	1526.5	1444.0	1327.5	1301.7	1176.7	1254.4
642	1231.7	983.9	1532.5	1593.6	1492.5	1517.3	1312.0	1422.4	1572.9	1526.5	1444.0	1327.5	1301.7	1176.7	1254.4
644	1351.1	1105.5	1520.6	1593.3	1475.1	1500.4	1303.2	1429.8	1586.2	1533.4	1392.5	1307.5	1307.9	1180.6	1263.7
646	1509.7	1265.2	1606.7	1661.9	1545.8	1579.3	1395.7	1530.9	1688.2	1633.0	1452.2	1391.9	1409.8	1263.0	1366.2
648	1505.0	1265.1	1550.1	1597.5	1483.9	1519.5	1343.0	1482.1	1637.9	1583.1	1384.9	1335.3	1361.9	1236.0	1321.9
650	1443.1	1197.1	1603.7	1671.2	1551.5	1581.4	1387.8	1516.8	1672.9	1620.1	1467.3	1389.9	1394.9	1267.6	1361.3
652	1199.3	951.8	1460.2	1551.9	1426.5	1448.6	1238.2	1352.8	1504.7	1457.0	1363.9	1252.1	1231.6	1105.7	1184.8

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EXHIBIT 5.4 LATA-TO-LATA DISTANCES, Part 3
LATA-to-LATA Distances(Miles)

T- LATA #	721	722	724	726	728	730	732	734	736	738	740	973
546	749.4	1154.5	1138.1	1108.8	1008.6	935.6	892.9	967.9	1111.8	1094.2	1061.1	841.0
548	956.4	1364.9	1350.3	1320.3	1217.1	1133.5	1082.0	1172.0	1320.0	1304.9	1265.1	1036.5
550	916.5	1331.6	1329.4	1293.5	1178.3	1076.5	1015.3	1124.1	1280.1	1273.3	1216.6	977.4
552	1070.8	1482.0	1470.5	1438.8	1332.2	1240.7	1183.7	1283.5	1434.8	1422.4	1376.5	1142.5
554	1190.1	1600.1	1586.0	1555.9	1451.3	1361.4	1304.2	1403.7	1554.1	1540.3	1496.7	1263.2
556	1089.5	1504.5	1500.7	1464.8	1351.3	1247.6	1183.7	1296.6	1453.1	1446.0	1399.0	1148.2
558	1084.9	1502.0	1507.0	1466.4	1345.6	1229.1	1158.2	1284.6	1446.0	1378.9	1328.9	1128.9
560	1224.2	1640.9	1642.6	1603.9	1485.4	1371.2	1300.7	1425.9	1586.2	1583.4	1517.4	1271.2
562	1286.6	1702.1	1698.8	1662.9	1548.3	1440.4	1372.9	1492.0	1649.8	1643.8	1584.0	1340.6
564	1184.9	1600.9	1617.7	1571.2	1441.3	1306.9	1225.7	1371.8	1538.9	1546.4	1460.5	1206.9
566	1073.4	1490.5	1458.2	1428.2	1332.2	1206.4	1130.6	1266.7	1431.2	1434.8	1356.8	1106.2
568	1238.2	1651.1	1675.8	1625.5	1480.2	1344.9	1257.7	1415.4	1585.4	1598.5	1501.9	1245.8
570	1146.8	1562.9	1562.2	1524.7	1408.4	1299.1	1231.7	1351.1	1509.7	1505.0	1443.1	1199.3
961	904.9	1322.0	1327.9	1286.7	1165.7	1051.7	989.9	1105.5	1266.2	1265.1	1197.1	951.8
620	1306.7	1610.4	1631.2	1542.8	1513.0	1532.5	1534.1	1520.6	1606.7	1590.1	1603.7	1460.2
624	1388.6	1655.8	1663.9	1585.2	1573.7	1616.3	1629.7	1593.3	1661.9	1597.5	1671.2	1551.9
626	1264.9	1542.9	1455.6	1473.3	1456.8	1492.5	1503.6	1472.1	1546.8	1483.9	1551.5	1426.5
628	1290.2	1579.1	1495.0	1510.3	1487.7	1517.3	1524.3	1500.4	1579.5	1519.5	1581.4	1446.5
630	1087.1	1404.1	1332.3	1338.4	1300.0	1312.0	1311.4	1303.2	1396.7	1343.0	1387.8	1238.2
632	1210.1	1543.7	1477.1	1479.7	1433.2	1431.6	1422.4	1429.8	1530.9	1482.1	1516.8	1352.8
634	1365.0	1701.3	1634.4	1637.3	1590.2	1585.2	1572.9	1585.4	1688.2	1639.7	1672.9	1504.7
635	1314.0	1644.5	1575.6	1579.9	1535.7	1535.7	1526.5	1533.4	1633.0	1603.1	1620.1	1457.0
636	1195.1	1442.2	1346.7	1370.8	1366.9	1422.2	1444.0	1392.5	1452.2	1384.9	1467.3	1363.9
638	1037.9	1261.8	1162.5	1189.6	1184.0	1262.9	1293.5	1226.2	1276.0	1205.7	1297.2	1211.5
640	1088.2	1423.6	1395.7	1317.7	1298.4	1328.3	1327.5	1307.6	1391.9	1335.3	1389.9	1252.1
644	1088.2	1423.6	1359.1	1360.1	1311.8	1309.9	1301.7	1307.9	1409.8	1361.9	1394.9	1231.6
646	961.1	1297.8	1235.7	1235.0	1184.7	1183.2	1176.7	1180.6	1267.6	1236.0	1267.6	1105.7
958	1043.3	1386.7	1322.1	1321.2	1268.5	1264.4	1254.4	1263.7	1368.2	1321.9	1351.3	1184.8
648	735.8	806.8	685.2	733.0	788.6	924.0	993.4	854.7	946.6	760.8	900.2	910.7
650	745.7	902.2	794.5	828.7	854.0	956.7	1008.9	902.7	926.2	849.3	962.6	924.8
652	517.2	517.9	396.8	444.2	511.8	670.1	754.4	589.1	623.2	473.3	623.2	676.4
960	799.6	743.5	607.7	674.7	773.4	946.2	1034.6	859.9	803.2	712.0	882.1	957.8
654	655.7	913.8	832.4	845.0	827.3	881.8	910.5	850.3	916.0	854.3	923.8	828.5
656	603.4	945.2	893.2	895.2	827.0	827.5	828.6	822.0	926.3	893.2	908.8	754.1
658	593.6	954.2	910.8	897.2	828.5	813.3	806.1	815.5	929.5	892.1	904.5	734.8
660	361.8	597.9	529.3	531.7	507.4	578.4	624.9	535.8	596.3	537.4	607.6	540.8
664	483.3	895.7	893.0	855.5	744.7	663.7	623.1	698.3	847.4	836.9	791.5	569.3
666	256.6	655.4	695.7	636.3	493.8	358.2	298.4	418.7	567.8	605.5	507.6	258.3
668	363.0	755.7	800.8	739.8	594.0	441.9	363.5	512.9	684.8	707.7	598.3	342.3
670	688.9	437.7	308.1	389.9	537.3	742.1	850.4	641.2	519.5	434.5	623.8	792.6
672	757.9	538.9	406.0	467.2	628.8	830.8	936.7	731.2	618.6	591.4	720.3	874.7
674	873.2	683.8	549.3	629.6	766.2	964.8	1068.0	866.8	761.9	673.4	861.3	1002.1
676	802.1	730.3	593.7	662.6	766.2	942.7	1033.2	854.6	792.3	700.9	873.8	957.3
720	345.4	184.4	109.1	111.2	193.2	389.6	419.5	291.4	221.6	134.5	297.7	435.5
721	0.0	417.2	441.3	387.3	261.8	227.7	263.2	223.5	364.1	361.6	318.2	179.1
722	417.2	0.0	137.9	74.0	151.8	350.3	462.4	253.5	88.5	62.1	200.2	431.0
724	441.3	137.9	0.0	81.9	255.8	442.2	553.4	340.5	212.7	126.5	315.8	505.2
726	387.3	74.0	81.9	0.0	158.4	363.6	475.6	262.1	133.0	44.6	233.9	431.8
728	261.8	161.8	235.8	158.4	0.0	206.5	317.7	104.7	118.3	111.7	162.5	274.5
730	227.7	350.3	442.2	363.6	205.5	0.0	112.5	101.7	265.8	321.2	162.5	100.2
732	263.2	462.4	553.4	475.6	317.7	112.5	0.0	213.4	377.1	453.5	270.2	84.1
734	223.5	253.5	340.5	262.1	104.7	213.4	213.4	0.0	173.8	220.2	93.2	178.2
736	364.1	88.5	212.7	133.0	103.2	265.8	265.8	173.8	0.0	91.6	189.3	392.8
738	361.6	62.1	126.5	44.6	18.3	321.2	433.5	220.2	0.0	0.0	257.3	0.0
740	315.2	200.2	315.8	233.9	111.7	270.2	270.2	93.2	111.8	392.8	257.3	0.0
973	179.1	431.0	505.2	431.8	274.5	100.2	84.1	178.2	351.9	257.3	0.0	0.0

To LATA #	224	226	228	230	232	234	236	238	240	242	244	246	248	250	252
Traffic (eng)	110.94	110.94	413.06	76.29	114.40	203.40	299.36	192.78	35.73	17.81	62.12	18.28	71.00	23.02	93.17
	92.74	92.74	345.30	112.37	95.63	195.54	288.37	161.15	29.87	17.12	51.93	17.57	68.25	19.24	89.57
	50.92	50.92	189.59	35.01	120.76	162.27	23.49	15.54	16.40	9.40	28.51	9.65	32.59	10.57	42.76
	76.96	76.96	436.05	93.25	120.76	162.27	23.49	15.54	16.40	9.40	28.51	9.65	32.59	10.57	42.76
	481.12	481.12	1791.36	330.84	496.12	1014.42	146.87	1496.01	24.79	14.21	43.09	14.58	56.64	18.36	74.33
	92.45	92.45	344.22	63.57	95.33	194.92	28.22	160.65	29.77	17.07	51.76	17.52	68.04	19.18	89.29
	297.87	297.87	1887.70	204.83	467.41	628.04	90.93	517.61	95.93	54.99	191.80	56.44	219.22	71.08	287.68
	1621.33	1621.33	6036.66	732.63	1671.84	2246.42	325.24	2817.38	343.14	299.33	686.03	201.87	784.11	254.23	1028.99
	108.57	108.57	404.24	49.06	111.95	150.43	21.78	123.84	22.98	13.17	45.94	13.52	52.51	17.02	68.90
	121.68	121.68	453.07	83.67	190.94	256.56	37.15	211.45	22.98	13.17	45.94	13.52	52.51	17.02	68.90
	227.75	227.75	557.23	102.91	234.84	315.55	45.69	260.76	48.20	27.63	96.37	28.36	110.14	35.71	144.54
	92.51	92.51	344.45	63.61	95.40	128.18	18.56	189.03	29.79	11.22	58.14	11.52	44.74	14.51	58.71
	155.18	155.18	577.78	162.38	243.50	497.89	72.08	269.66	49.98	28.65	99.92	29.40	114.20	37.03	149.87
	92.06	92.06	342.77	96.33	144.46	194.11	42.77	159.98	29.65	17.00	59.28	17.44	67.75	21.97	88.91
	41.98	41.98	156.32	18.97	43.29	58.17	8.42	72.96	13.52	7.75	17.76	5.23	20.30	6.58	26.65
	231.28	231.28	861.13	159.04	238.49	320.45	46.39	401.90	74.49	42.70	97.86	28.80	111.85	36.27	146.79
	826.72	826.72	3078.11	373.57	852.48	1145.46	165.84	1436.59	174.97	152.63	349.81	102.93	399.82	129.63	524.69
	0.00	0.00	807.37	149.11	223.60	457.20	43.50	376.81	69.84	40.03	91.75	41.09	159.59	34.00	137.62
	754.54	754.54	0.00	518.84	778.05	1045.45	151.36	2346.16	243.01	139.30	319.27	142.96	364.91	118.31	478.87
	145.25	145.25	540.61	0.00	149.78	306.25	41.34	451.64	46.78	17.62	61.46	27.52	105.94	22.78	92.18
	219.05	219.05	815.60	150.63	0.00	303.51	43.94	380.65	70.55	26.58	92.69	27.27	105.94	34.35	139.03
	441.35	441.35	1079.86	303.49	299.07	0.00	134.73	766.93	142.14	53.55	186.75	83.62	213.45	69.21	280.11
	42.11	42.11	156.79	44.06	43.42	135.11	0.00	130.94	13.55	7.77	27.11	7.98	30.99	10.05	40.67
	481.71	481.71	1793.56	331.24	498.72	1015.66	96.63	837.07	155.14	88.93	310.17	91.27	354.52	114.94	465.23
	1623.47	1623.47	248.46	233.69	350.44	716.56	68.17	1056.73	109.45	62.74	148.80	64.39	250.11	81.09	328.22
	66.73	66.73	248.46	45.89	68.81	140.70	13.39	207.50	0.00	12.32	28.24	12.64	49.11	15.92	42.35
	35.50	35.50	132.19	16.04	24.06	49.19	7.12	110.39	11.43	0.00	15.02	5.73	26.13	5.57	34.29
	425.91	425.91	89.16	61.31	91.94	187.98	27.22	154.93	28.71	16.46	0.00	25.71	99.85	32.37	86.11
	127.63	127.63	40.66	151.38	27.55	85.73	8.16	126.42	13.09	7.51	26.18	0.00	29.92	9.70	39.27
	477.70	477.70	372.33	68.76	103.12	210.84	30.53	473.17	49.01	28.09	97.98	28.83	0.00	36.31	146.97
	158.15	158.15	123.27	22.77	34.14	69.81	10.11	156.65	16.23	5.11	32.44	9.55	37.08	0.00	48.66
	603.02	603.02	470.01	86.80	130.17	266.16	38.53	597.30	40.66	35.46	81.28	36.40	141.37	45.84	0.00
	36.07	36.07	11.49	7.90	7.79	24.23	2.30	35.73	3.70	2.12	7.40	2.18	8.46	2.74	11.10
	54.11	54.11	42.17	11.85	11.68	36.34	3.46	53.59	5.55	3.18	11.10	3.27	12.68	4.11	16.65
	12.95	12.95	15.36	2.84	2.80	8.70	0.83	12.83	1.33	0.76	2.66	0.78	3.04	0.98	3.98
	487.41	487.41	379.90	70.16	105.21	327.37	31.15	177.30	32.86	18.84	99.98	29.42	75.09	37.05	98.54
	313.53	313.53	244.37	68.68	67.68	210.59	31.06	173.56	32.86	18.84	99.98	29.42	75.09	37.05	98.54
	56.88	56.88	11.91	44.33	12.28	25.11	3.63	37.02	3.83	2.20	11.67	3.43	8.76	4.32	11.50
	207.07	207.07	770.97	216.67	213.52	664.37	96.19	643.85	66.69	38.23	133.33	39.23	152.39	49.41	199.98
	322.294.11	322.294.11	61.57	229.24	64.42	222.30	28.60	191.44	30.17	11.37	39.64	11.67	45.31	14.69	59.46
	215.59	215.59	802.69	148.24	222.30	691.71	65.81	670.34	69.43	39.80	138.81	40.85	158.66	51.44	208.21
	580.82	580.82	121.59	127.23	125.38	390.11	56.48	378.07	39.16	22.45	78.29	23.04	89.48	29.01	117.43
	596.55	596.55	124.88	85.87	128.77	263.30	58.01	368.30	40.22	23.06	80.41	23.66	91.90	29.80	104.68
	477.32	477.32	114.91	118.49	242.28	35.08	50.41	367.30	37.01	21.21	73.99	21.77	84.57	27.42	110.98
	686.02	686.02	165.15	113.56	170.30	348.21	50.41	513.52	53.19	30.49	106.34	31.29	121.54	39.41	159.50
	301.97	301.97	63.21	43.47	65.18	202.82	29.36	196.55	20.36	11.67	40.70	11.88	46.52	15.08	61.05
	148.38	148.38	71.06	21.36	32.03	75.32	10.90	96.58	10.00	5.73	29.00	5.89	22.86	8.52	30.00
	332.130.88	332.130.88	76.77	52.79	68.83	161.86	23.43	207.56	24.72	12.32	49.43	14.55	49.13	18.32	64.47
	213.12	213.12	51.31	35.28	46.00	108.18	15.66	159.53	16.52	8.24	33.04	9.72	37.76	12.24	43.09
	621.13	621.13	197.68	166.74	177.25	416.79	60.34	614.66	63.66	31.74	127.28	37.45	145.48	47.17	166.01
	213.93	213.93	44.78	35.41	46.18	108.59	15.72	139.25	16.59	9.67	33.16	9.76	32.96	12.29	43.25
	71.58	71.58	17.23	11.85	17.77	36.33	5.26	53.58	5.55	2.77	11.10	3.26	12.68	4.11	14.70
	63.13	63.13	13.22	10.45	13.63	32.05	1.64	41.09	4.26	2.44	9.79	2.50	9.73	3.63	12.76
	340.2392.66	340.2392.66	184.89	344.42	516.48	1056.06	232.67	1557.41	161.31	92.47	322.51	94.90	368.62	119.52	420.64
	130.29	130.29	27.27	101.55	28.12	57.51	9.57	84.81	8.78	5.04	17.56	5.17	20.07	6.51	26.34
	336.89	336.89	95.55	65.70	98.52	201.46	29.17	166.03	30.77	15.34	61.52	18.10	61.15	22.80	80.24
	218.75	218.75	52.66	38.21	54.30	111.04	16.08	163.75	16.96	8.45	33.91	9.98	33.70	12.57	44.23
	822.74	822.74	198.06	136.20	177.60	417.61	60.46	535.53	63.79	31.80	127.53	32.63	126.75	41.10	166.34
	453.59	453.59	94.95	65.29	97.91	200.20	33.33	295.25	30.58	17.53	61.14	17.99	69.88	22.66	91.71
	212.72	212.72	44.53	30.62	45.92	93.89	13.59	138.46	14.34	8.22	28.67	8.44	32.77	10.63	43.01
	374.38	374.38	78.37	291.80	80.81	165.24	27.51	243.69	25.24	14.47	50.46	14.85	57.68	18.70	75.69
	867.78	867.78	181.66	124.91	187.32	440.47	63.77	564.85	58.51	33.54	116.97	34.42	133.69	43.35	175.44
	3286.54	3286.54	687.99	2561.59	544.05	709.43	166.18	2139.25	221.58	127.02	442.99	130.35	506.33	164.17	664.46
	145.57	145.57	30.47	20.95	31.42	73.89	10.70	94.75	9.81	5.63	19.62	5.77	22.43	7.27	29.43
	146.77	146.77	30.73	21.13	31.68	64.78	9.36	95.54	9.90	5.67	19.78	5.82	22.61	7.33	29.67
	107.77	107.77	22.56	15.51	23.26	47.57	7.92	70.15	7.27	4.17	14.53	4.27	16.60	5.38	21.79

To LATA #	927	928	929	254	256	932	320	322	324	325	326	328	922	923	330	332
120	5.18	7.81	1.85	54.01	34.59	6.60	134.27	39.79	134.58	78.26	77.22	64.46	101.88	39.37	19.88	42.69
122	4.98	7.51	1.78	45.15	28.92	5.52	112.24	38.26	112.50	65.42	64.56	53.88	85.17	32.91	16.62	35.69
124	2.38	24.79	0.98	24.79	15.88	3.03	70.87	21.00	61.77	41.31	35.44	29.59	46.76	18.07	9.12	19.59
126	4.14	6.23	1.48	37.46	27.60	4.58	107.12	31.75	93.36	62.43	53.57	44.72	70.68	27.31	13.79	29.61
128	25.86	38.95	9.22	234.21	150.03	28.64	582.30	172.58	583.65	339.39	334.91	279.55	441.83	170.76	86.20	185.14
130	4.37	7.48	1.77	45.00	33.15	5.50	111.89	38.14	112.15	65.21	64.35	53.72	84.90	32.81	16.56	35.58
132	57.26	86.24	20.42	596.46	382.07	72.94	1482.92	439.50	1486.35	864.30	852.89	619.05	978.43	434.87	190.89	409.99
133	3.83	5.78	1.37	39.94	25.58	4.88	99.30	29.43	99.53	87.88	57.11	41.45	65.52	29.12	12.78	27.45
134	6.54	9.85	2.33	59.24	43.64	10.25	169.37	50.20	147.61	98.71	119.81	100.00	111.75	49.67	21.80	46.82
136	8.04	12.11	2.87	83.78	53.67	10.25	208.30	61.74	208.79	121.41	119.81	100.00	137.44	61.09	26.81	57.59
138	3.27	4.92	1.17	34.03	21.80	4.16	84.82	25.08	84.81	49.32	48.67	40.62	64.20	24.81	10.89	23.39
140	8.34	12.56	2.97	86.87	55.85	10.62	328.67	97.41	216.48	191.56	124.22	103.69	163.88	63.34	27.80	68.67
974	4.95	7.45	1.76	51.54	33.01	6.30	128.14	37.98	128.43	74.68	73.70	61.51	97.23	37.58	16.49	40.74
220	1.48	2.23	0.53	15.45	9.89	1.89	38.40	11.38	38.49	22.38	19.20	16.03	25.34	11.26	4.94	10.62
222	8.17	12.30	2.91	85.09	54.50	10.40	211.54	62.69	212.03	123.29	121.66	88.31	139.57	62.03	27.23	58.48
224	29.20	43.98	10.41	304.14	194.82	37.19	766.15	224.10	787.89	440.71	434.89	315.66	498.91	221.74	97.34	209.05
226	11.55	17.55	4.16	79.77	77.76	9.75	198.33	58.78	198.79	115.60	114.07	95.21	150.49	58.16	25.53	63.06
228	26.65	40.14	14.46	277.58	177.81	33.94	690.13	204.53	691.72	402.23	396.92	331.31	455.35	202.38	88.84	190.80
230	7.81	11.76	2.78	53.44	52.09	6.53	202.17	59.92	133.16	117.83	76.41	63.78	100.80	38.96	17.10	42.24
232	7.74	11.65	2.76	80.59	51.62	9.85	200.35	59.38	200.82	116.77	115.23	96.19	182.02	58.75	25.79	55.39
234	23.72	35.73	8.46	247.08	158.27	19.85	614.29	182.06	615.70	358.03	232.17	193.79	306.30	180.14	59.76	128.35
236	2.26	3.41	0.81	23.57	22.98	2.88	89.19	26.43	89.75	51.98	51.30	28.14	44.47	26.16	6.68	18.63
238	25.89	38.99	9.23	177.22	122.74	21.67	440.59	130.58	441.61	256.79	253.40	211.52	334.31	129.20	56.72	121.81
240	18.27	27.51	6.51	125.03	121.87	15.29	310.84	92.12	311.56	186.17	178.78	149.23	235.86	91.15	40.01	85.94
242	3.59	5.40	1.28	24.55	23.93	3.60	61.04	27.53	61.18	35.57	35.10	29.30	46.31	17.90	7.86	19.41
244	1.91	2.87	0.68	13.06	8.37	1.50	32.47	9.62	32.55	18.93	18.68	15.59	24.64	9.52	4.18	8.98
246	7.29	10.98	2.60	75.95	48.65	9.29	124.09	36.78	124.38	72.33	71.37	59.57	94.16	36.39	18.37	39.45
248	2.19	3.29	0.78	22.76	14.58	2.78	37.27	11.02	37.27	21.67	21.05	17.85	28.22	10.91	4.79	11.82
250	8.18	12.32	2.92	55.98	54.57	6.85	139.51	41.25	139.51	81.12	80.05	66.82	105.61	40.82	17.92	38.48
252	2.71	4.08	0.97	28.20	18.07	3.45	46.08	13.66	46.19	26.86	26.50	22.12	34.96	13.51	6.82	14.65
254	10.32	15.55	3.68	70.67	45.27	8.64	175.70	52.07	176.10	102.40	87.87	84.35	133.31	51.52	22.62	48.58
927	0.00	0.93	0.22	6.43	4.12	0.79	10.51	3.11	10.53	6.13	6.04	5.05	7.97	3.08	1.56	3.34
928	0.33	0.00	0.33	9.65	6.18	1.18	15.76	4.97	15.80	9.19	9.07	7.57	11.96	4.62	2.33	5.01
929	0.33	0.00	0.00	2.31	1.48	0.28	3.77	1.70	3.78	2.20	2.17	1.81	2.86	1.11	0.56	1.20
254	8.34	12.57	2.98	0.00	55.68	10.63	142.01	64.05	216.61	125.95	81.68	103.75	163.98	63.37	21.02	45.15
256	5.37	8.08	1.91	55.91	0.00	6.84	139.01	41.20	139.34	81.02	52.54	43.86	69.32	40.77	13.52	29.04
932	0.97	1.47	0.35	10.14	6.50	0.00	16.57	4.91	16.61	9.66	9.53	7.96	12.57	4.86	2.45	5.27
320	11.13	16.76	3.97	115.92	113.00	14.17	0.00	129.98	439.58	255.61	252.24	210.55	218.68	128.61	42.67	91.63
322	3.31	4.98	1.80	52.45	33.60	4.21	130.40	0.00	130.70	75.00	75.00	41.14	65.02	38.24	12.69	27.25
324	11.59	17.45	4.13	183.66	117.64	14.76	456.61	135.33	0.00	266.13	262.62	219.21	346.47	133.90	44.42	95.40
325	6.53	9.84	2.33	103.58	66.35	8.32	257.52	76.32	258.12	0.00	148.11	123.63	128.41	75.52	25.05	53.81
326	6.71	10.11	2.39	63.91	44.78	8.55	264.50	78.39	265.11	154.16	0.00	126.98	200.69	77.56	25.73	84.09
328	6.18	9.30	2.20	97.89	41.21	7.87	243.38	47.40	243.94	141.85	139.98	0.00	184.67	71.37	23.68	77.38
922	8.88	13.37	3.17	140.69	59.22	11.31	229.86	68.13	350.60	133.97	201.18	167.93	0.00	102.58	51.78	111.21
923	3.40	5.12	1.21	53.85	34.50	4.33	133.89	39.68	134.20	78.03	77.01	64.28	101.59	0.00	13.02	27.97
330	1.92	2.89	0.68	20.00	12.81	2.45	49.72	14.74	49.83	28.98	28.60	23.87	57.41	14.58	0.00	15.61
332	4.13	6.21	1.47	42.98	27.53	3.26	106.85	31.67	107.09	62.27	93.51	78.06	123.37	31.93	15.82	0.00
334	2.76	4.15	0.98	28.72	18.40	5.51	71.41	21.16	100.92	41.62	62.50	52.17	82.45	31.87	10.57	34.55
336	10.62	16.00	3.79	110.65	70.89	13.53	275.13	81.54	419.65	160.36	240.80	201.00	317.68	80.68	61.98	133.12
338	2.77	4.17	0.99	28.83	18.47	3.53	71.68	21.24	109.33	41.78	41.23	52.37	82.77	21.02	16.15	34.68
937	0.93	1.39	0.33	9.65	6.18	1.18	23.98	7.11	36.58	21.27	20.99	17.52	27.69	10.70	5.40	11.60
938	0.82	1.23	0.29	8.51	5.45	1.04	21.15	6.27	21.20	12.33	12.17	15.45	24.43	6.20	4.77	10.23
340	26.92	40.54	9.60	280.40	179.61	34.29	1060.65	314.41	1063.30	618.30	610.14	509.29	528.96	311.09	103.20	337.29
342	1.47	2.21	0.52	15.27	9.78	1.87	43.86	11.25	38.05	25.44	25.11	20.96	28.80	12.80	5.62	13.88
344	5.14	7.73	1.83	34.26	6.54	6.54	202.37	39.41	133.29	77.51	116.39	63.84	100.91	59.34	19.69	64.34
346	2.83	4.26	1.01	29.48	18.88	3.61	111.54	21.72	73.47	65.01	64.15	35.19	55.62	32.71	10.85	35.46
348	10.65	13.94	3.80	110.88	71.03	13.56	275.67	81.70	278.31	160.67	241.27	132.34	209.17	80.84	40.81	133.38
350	5.10	7.69	1.82	53.16	34.05	6.50	151.98	45.04	162.33	88.58	87.41	72.96	115.32	44.57	22.50	48.32
352	2.39	3.60	0.85	24.93	15.97	3.05	61.98	18.37	62.12	36.12	40.99	29.75	47.03	18.18	9.18	22.66
354	4.21	6.34	1.50	43.87	28.10	5.36	125.44	37.18	125.73	73.11	72.15	60.22	95.18	36.79	18.57	60.69
356	9.76	14.70	3.48	116.95	74.91	12.44	290.76	86.17	291.44	169.47	167.23	139.59	220.62	85.27	43.04	140.68
358	36.98	55.69	13.19	442.93	283.72	47.10	1101.21	326.37	1103.75	641.82	633.35	528.66	835.57	322.93	163.02	532.80
360	1.64	2.47	0.58	19.62	10.93	2.09	48.78	14.46	48.89	28.43	28.05	23.40	37.01	14.30	7.22	23.60
362	1.65	2.49	0.59	19.78	11.02	2.42	42.76	12.67	48.29	28.66	28.29	23.61	37.32	14.42	11.08	23.64
364	1.21	1.83	0.43	14.52	8.09	1.54	36.11	10.70	36.19	21.05	20.77	17.34	27.40	10.59	5.35	17.47

To LATA #	334	336	338	937	938	340	342	From LATA #	344	346	348	350	352	354	356	358	360
120	28.43	111.11	28.61	9.97	8.32	346.66	22.89	66.46	34.99	133.10	72.20	24.61	24.61	57.90	135.47	556.88	360
122	23.77	92.88	23.92	8.36	6.96	289.79	19.14	55.56	29.25	111.26	60.36	20.57	20.57	48.40	113.24	465.52	23.88
124	13.05	51.00	13.13	4.58	3.82	159.11	10.51	30.50	16.06	61.09	33.14	16.14	16.14	26.58	62.18	255.60	10.96
126	19.72	77.08	19.85	6.92	5.77	240.48	15.88	46.11	24.28	92.33	50.09	24.39	24.39	40.17	93.97	386.32	16.57
128	123.31	481.88	124.10	43.24	36.10	1503.39	99.28	288.23	151.76	577.22	313.74	106.74	106.74	251.11	587.49	2415.08	103.56
130	23.69	92.59	23.85	8.31	6.94	288.88	19.08	55.38	29.16	110.91	60.17	20.51	20.51	48.25	112.89	464.07	19.90
132	273.06	1067.11	274.81	95.75	79.93	3828.62	219.86	638.29	336.08	1278.24	693.47	193.87	193.87	455.47	1300.98	5346.17	229.33
133	18.29	71.46	18.40	6.41	5.35	256.38	14.72	42.74	22.60	95.60	46.44	16.44	16.44	37.24	87.12	358.13	15.36
134	31.19	121.87	31.39	10.94	9.13	437.27	25.11	72.90	38.38	145.99	79.20	38.57	38.57	63.51	148.59	610.82	26.19
136	38.36	149.90	38.60	13.45	11.23	537.80	30.88	103.11	54.29	206.49	97.41	47.43	47.43	78.11	182.73	751.25	32.21
138	15.58	60.89	15.68	6.28	4.56	218.46	12.54	41.86	22.08	83.88	39.57	19.27	19.27	31.73	74.23	305.17	13.09
140	45.74	178.74	46.03	16.04	11.64	557.63	36.62	106.91	56.29	214.10	116.15	49.18	49.18	80.99	217.91	895.79	33.40
142	27.13	106.04	27.35	9.51	6.91	330.82	19.00	63.43	33.40	127.02	59.92	29.18	29.18	48.05	112.41	462.12	19.82
144	27.07	27.63	27.12	2.48	2.07	99.14	5.69	16.53	8.70	33.10	17.96	8.74	8.74	14.40	33.69	138.49	5.94
146	152.22	552.22	152.22	13.66	11.40	546.15	31.36	91.05	47.94	182.34	98.92	48.17	48.17	79.33	185.58	762.91	32.71
148	139.23	544.12	140.13	48.82	40.76	1952.23	112.11	326.46	171.37	651.78	353.59	172.18	172.18	283.55	663.38	2727.05	116.93
150	42.00	164.12	42.13	14.73	10.69	512.06	29.40	98.17	51.69	196.60	92.74	45.16	45.16	74.37	174.00	715.29	30.67
152	127.08	496.61	127.89	44.56	37.20	1781.77	102.32	297.05	156.40	594.87	322.71	157.15	157.15	258.79	605.46	2488.94	106.73
154	28.13	109.94	28.31	9.86	8.24	343.00	19.70	65.76	34.62	131.69	62.12	30.25	30.25	49.82	116.55	551.00	20.54
156	36.89	144.17	37.13	14.88	10.80	517.28	29.70	99.17	52.22	172.70	93.69	45.62	45.62	75.13	175.77	722.58	30.98
158	85.48	334.06	86.03	29.97	25.02	1042.21	59.85	199.81	105.21	400.15	188.76	91.92	91.92	151.38	407.27	1674.23	71.79
160	12.41	48.50	12.49	4.35	3.63	230.27	9.99	29.01	15.28	58.10	31.52	13.35	13.35	25.28	59.13	243.09	10.42
162	93.30	364.61	93.65	32.71	23.75	1137.52	65.32	218.09	114.83	379.78	208.03	100.33	100.33	165.22	386.54	1589.00	68.14
164	65.82	223.68	65.82	23.08	16.76	802.53	46.08	153.86	81.01	267.94	145.35	70.78	70.78	116.56	272.70	1221.05	48.07
166	12.92	50.51	13.01	4.53	3.29	157.58	9.05	30.21	15.91	60.50	28.54	13.90	13.90	22.89	53.55	220.13	9.44
168	5.98	23.37	6.02	2.10	1.75	83.84	4.81	13.98	7.36	27.99	15.18	7.39	7.39	12.18	28.49	117.11	5.02
170	26.28	102.69	26.45	9.21	7.69	320.39	18.40	61.42	32.34	123.01	58.03	28.26	28.26	46.53	108.87	447.54	19.19
172	7.87	30.77	7.93	2.76	2.00	96.01	5.61	18.41	9.69	32.05	17.39	8.47	8.47	13.95	32.63	134.12	5.75
174	115.18	377.87	115.18	40.33	32.50	1178.89	44.49	148.53	78.20	297.44	161.36	88.54	88.54	129.09	302.73	1244.50	53.36
176	38.13	126.43	38.26	13.34	9.47	394.45	26.03	72.81	39.72	167.75	91.01	45.52	45.52	74.96	170.74	701.88	30.10
178	8.70	33.05	8.70	3.12	2.34	107.70	4.91	13.59	7.37	3.59	5.91	1.41	1.41	3.31	9.22	37.90	2.44
180	13.05	51.00	13.13	4.58	3.82	159.11	10.51	30.50	16.06	61.09	33.14	16.14	16.14	26.58	62.18	255.60	10.96
182	19.72	77.08	19.85	6.92	5.77	240.48	15.88	46.11	24.28	92.33	50.09	24.39	24.39	40.17	93.97	386.32	16.57
184	123.31	481.88	124.10	43.24	36.10	1503.39	99.28	288.23	151.76	577.22	313.74	106.74	106.74	251.11	587.49	2415.08	103.56
186	23.69	92.59	23.85	8.31	6.94	288.88	19.08	55.38	29.16	110.91	60.17	20.51	20.51	48.25	112.89	464.07	19.90
188	273.06	1067.11	274.81	95.75	79.93	3828.62	219.86	638.29	336.08	1278.24	693.47	193.87	193.87	455.47	1300.98	5346.17	229.33
190	18.29	71.46	18.40	6.41	5.35	256.38	14.72	42.74	22.60	95.60	46.44	16.44	16.44	37.24	87.12	358.13	15.36
192	31.19	121.87	31.39	10.94	9.13	437.27	25.11	72.90	38.38	145.99	79.20	38.57	38.57	63.51	148.59	610.82	26.19
194	38.36	149.90	38.60	13.45	11.23	537.80	30.88	103.11	54.29	206.49	97.41	47.43	47.43	78.11	182.73	751.25	32.21
196	15.58	60.89	15.68	6.28	4.56	218.46	12.54	41.86	22.08	83.88	39.57	19.27	19.27	31.73	74.23	305.17	13.09
198	45.74	178.74	46.03	16.04	11.64	557.63	36.62	106.91	56.29	214.10	116.15	49.18	49.18	80.99	217.91	895.79	33.40
200	27.13	106.04	27.35	9.51	6.91	330.82	19.00	63.43	33.40	127.02	59.92	29.18	29.18	48.05	112.41	462.12	19.82
202	27.07	27.63	27.12	2.48	2.07	99.14	5.69	16.53	8.70	33.10	17.96	8.74	8.74	14.40	33.69	138.49	5.94
204	152.22	552.22	152.22	13.66	11.40	546.15	31.36	91.05	47.94	182.34	98.92	48.17	48.17	79.33	185.58	762.91	32.71
206	139.23	544.12	140.13	48.82	40.76	1952.23	112.11	326.46	171.37	651.78	353.59	172.18	172.18	283.55	663.38	2727.05	116.93
208	42.00	164.12	42.13	14.73	10.69	512.06	29.40	98.17	51.69	196.60	92.74	45.16	45.16	74.37	174.00	715.29	30.67
210	127.08	496.61	127.89	44.56	37.20	1781.77	102.32	297.05	156.40	594.87	322.71	157.15	157.15	258.79	605.46	2488.94	106.73
212	28.13	109.94	28.31	9.86	8.24	343.00	19.70	65.76	34.62	131.69	62.12	30.25	30.25	49.82	116.55	551.00	20.54
214	36.89	144.17	37.13	14.88	10.80	517.28	29.70	99.17	52.22	172.70	93.69	45.62	45.62	75.13	175.77	722.58	30.98
216	85.48	334.06	86.03	29.97	25.02	1042.21	59.85	199.81	105.21	400.15	188.76	91.92	91.92	151.38	407.27	1674.23	71.79
218	12.41	48.50	12.49	4.35	3.63	230.27	9.99	29.01	15.28	58.10	31.52	13.35	13.35	25.28	59.13	243.09	10.42
220	93.30	364.61	93.65	32.71	23.75	1137.52	65.32	218.09	114.83	379.78	208.03	100.33	100.33	165.22	386.54	1589.00	68.14
222	65.82	223.68	65.82	23.08	16.76	802.53	46.08	153.86	81.01	267.94	145.35	70.78	70.78	116.56	272.70	1221.05	48.07
224	12.92	50.51	13.01	4.53	3.29	157.58	9.05	30.21	15.91	60.50	28.54	13.90	13.90	22.89	53.55	220.13	9.44
226	5.98	23.37	6.02	2.10	1.75	83.84	4.81	13.98	7.36	27.99	15.18	7.39	7.39	12.18	28.49	117.11	5.02
228	26.28	102.69	26.45	9.21	7.69	320.39	18.40	61.42	32.34	123.01	58.03	28.26	28.26	46.53	108.87	447.54	19.19
230	7.87	30.77	7.93	2.76	2.00	96.01	5.61	18.41	9.69	32.05	17.39	8.47	8.47	13.95	32.63	134.12	5.75
232	115.18	377.87	115.18	40.33	32.50	1178.89	44.49	148.53	78.20	297.44	161.36	88.54	88.54	129.09	302.73	1244.50	53.36
234	38.13	126.43	38.26	13.34	9.47	394.45	26.03	72.81	39.72	167.75	91.01	45.52	45.52	74.96	170.74	701.88	30.10
236	8.70	33.05	8.70	3.12	2.34	107.70	4.91	13.59	7.37	3.59	5.91	1.41	1.41	3.31	9.22	37.90	2.44
238	13.05	51.00	13.13	4.58	3.82	159.11	10.51	30.50	16.06	61.09	33.14	16.14	16.14	26.58	62.18	255.60	10.96
240	19.72	77.08	19.85	6.92	5.77	240.48	15.88	46.11	24.28	92.33	50.09	24.39	24.39	40.17	93.97	386.32	16.57
242	123.31	481.88	124.10	43.24	36.10	1503.39	99.28	288.23	151.76	577.22	313.74	106.74	106.74	251.11	587.49	2415.08	103.56
244	23.69	92.59	23.85	8.31	6.94	288.88	19.08	55.38	29.16	110.91	60.17	20.51	20.51	48.25	112.89	464.07	19.90
246	273.06	1067.11	274.81	95.75	79.93	3828.62	219.86</										

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 1 Page 5 of 12

To LATA #	362	364	366	368	370	374	376	From LATA #	977	978	420	422	424	426	428	949
120	16.57	17.53	14.30	34.00	21.00	18.46	8.99	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
122	13.86	14.56	11.96	28.42	17.55	22.04	7.51	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
124	10.86	8.05	6.56	15.60	9.64	12.10	5.89	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
126	16.42	12.16	9.92	23.58	14.57	18.29	8.91	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
128	71.86	76.02	62.03	147.44	91.06	114.34	38.98	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
130	13.61	14.61	11.92	28.33	17.50	21.97	7.49	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
132	63.55	47.06	38.40	91.28	56.38	70.79	34.48	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
134	227.32	168.34	137.35	326.50	201.65	253.21	123.33	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
136	15.22	11.27	9.20	21.86	13.50	16.96	8.26	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
138	25.96	19.23	15.69	37.29	23.03	28.92	14.09	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
140	31.93	23.65	19.29	45.86	28.33	35.57	17.32	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
142	12.97	9.61	7.84	18.63	11.51	14.45	7.04	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
144	39.11	24.52	20.01	47.55	29.37	36.88	17.96	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
146	19.64	14.55	11.87	28.21	17.42	21.88	10.66	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
148	5.89	4.36	3.56	8.45	5.22	6.56	3.19	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
150	32.43	24.01	19.59	46.57	28.76	36.12	17.59	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
152	115.91	85.83	70.04	166.48	103.82	129.11	62.89	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
154	30.40	22.51	18.37	43.67	26.97	33.87	16.49	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
156	105.79	78.34	63.92	151.95	93.64	117.84	57.40	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
158	20.37	15.08	12.31	29.25	18.07	22.68	11.05	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
160	30.71	22.74	18.56	44.11	27.24	34.21	16.66	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
162	61.88	45.82	43.00	88.08	63.13	68.93	33.57	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
164	7.65	6.24	6.24	12.90	9.17	10.01	4.87	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
166	67.54	50.01	40.81	97.01	59.91	75.23	36.64	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
168	47.65	35.29	28.79	68.44	42.27	53.08	25.85	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
170	9.36	6.93	5.65	13.44	8.30	10.42	5.08	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
172	4.98	3.69	3.01	7.15	4.42	5.54	2.70	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
174	14.92	14.09	11.49	27.32	19.41	21.19	10.32	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
176	5.70	4.22	3.44	8.19	5.06	6.35	3.09	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
178	21.34	15.80	12.89	30.64	18.93	23.77	11.58	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
180	7.06	5.23	4.27	10.15	6.27	7.87	3.83	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
182	26.93	19.94	16.27	38.68	23.68	30.00	14.61	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
184	1.61	1.19	0.97	2.31	1.43	1.79	0.87	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
186	2.42	1.79	1.46	3.47	2.14	2.69	1.31	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
188	0.58	0.43	0.35	0.83	0.51	0.64	0.31	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
190	25.04	18.54	15.13	35.96	22.21	27.89	11.81	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
192	14.00	10.37	9.73	23.13	14.29	17.94	7.60	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
194	2.92	2.19	1.77	3.65	2.59	3.25	1.38	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
196	44.18	37.62	30.70	72.97	45.07	56.59	23.97	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
198	13.14	11.19	9.13	21.70	13.40	16.83	7.73	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
200	52.90	39.17	31.96	75.97	46.92	58.92	28.70	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
202	29.83	22.09	18.03	42.85	26.46	33.23	14.07	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
204	30.64	22.69	18.51	40.41	27.18	34.13	16.62	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
206	28.19	20.88	17.04	40.49	25.01	31.41	15.30	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
208	40.52	30.01	24.48	58.20	35.95	45.14	21.98	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
210	11.49	11.49	9.37	22.28	13.76	17.28	8.41	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
212	6.49	6.49	8.06	12.59	11.83	14.86	4.76	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
214	21.33	17.32	17.32	41.17	25.43	20.98	10.22	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
216	9.32	9.32	11.58	18.08	16.99	14.02	6.83	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
218	48.50	35.92	44.60	106.01	65.47	82.21	26.31	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
220	12.64	9.36	11.62	27.62	17.06	21.42	6.86	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
222	4.23	3.13	2.55	6.07	5.71	4.71	2.29	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
224	5.67	4.20	3.43	8.15	5.03	6.32	2.02	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
226	122.90	91.01	74.26	176.51	109.02	136.89	66.67	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
228	6.69	5.70	4.65	11.05	6.83	8.57	4.18	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
230	20.39	17.36	14.17	33.67	20.80	26.11	12.72	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
232	12.92	9.57	7.81	18.56	11.46	14.39	7.01	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
234	48.60	35.99	29.36	69.80	43.11	54.13	26.37	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
236	26.79	30.19	16.19	38.48	23.77	29.84	14.54	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
238	10.93	9.30	7.59	18.05	11.15	14.00	6.82	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
240	22.11	24.92	20.33	48.33	19.62	24.63	12.00	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
242	51.26	57.76	47.13	112.03	45.47	57.10	27.81	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
244	194.13	218.76	178.50	424.30	262.05	329.06	105.32	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
246	8.60	6.69	7.91	18.79	11.61	14.57	7.10	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
248	0.00	0.00	5.24	12.45	7.69	14.70	4.70	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949
250	6.37	0.00	5.85	13.91	8.59	10.79	5.26	376	977	11.29	28.62	117.54	72.22	49.38	23.81	949

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 1

To LATA #	951	430	432	434	436	438	440	442	444	446	448	450	452	454	456	458
120	55.87	57.29	36.19	45.08	30.05	159.72	30.57	29.33	28.57	21.95	23.72	13.25	50.66	32.10	16.01	458
122	46.70	47.89	30.26	37.68	25.12	190.75	36.51	24.52	23.89	26.22	19.83	11.08	42.35	26.83	13.38	456
124	25.64	26.29	16.61	20.69	13.79	104.73	20.04	13.46	13.11	14.40	10.89	6.08	23.25	14.73	7.35	454
126	38.76	39.74	25.11	31.27	20.85	158.29	30.29	20.35	20.32	21.76	16.45	9.19	50.20	22.27	11.11	452
128	242.29	248.44	156.95	195.50	130.33	989.57	188.38	127.20	123.91	136.02	102.86	57.48	219.69	139.21	69.43	450
130	46.56	47.74	30.16	37.57	25.04	190.15	36.39	24.44	34.01	26.14	19.77	11.04	60.31	26.75	13.34	448
132	172.50	153.81	97.17	121.04	80.69	612.66	117.25	78.75	109.60	84.21	63.68	33.59	194.31	123.12	61.41	446
134	617.02	550.17	347.56	432.93	288.61	2191.39	419.39	281.69	392.01	301.21	227.79	181.84	695.01	440.38	219.66	444
136	41.32	36.84	23.27	28.99	19.33	146.74	28.08	18.86	26.25	20.17	15.25	8.52	46.54	29.49	14.71	442
138	61.28	62.83	39.70	49.45	32.96	250.28	47.90	32.17	44.77	34.40	26.02	14.54	79.38	35.21	17.56	440
140	86.67	77.28	48.82	60.81	40.54	307.82	58.91	39.57	55.06	42.31	32.00	17.88	97.63	61.86	30.86	438
142	31.39	19.83	19.83	24.70	16.47	125.04	23.93	16.07	22.37	17.19	13.00	10.38	39.66	25.13	13.63	436
144	69.87	80.13	50.62	63.06	42.04	319.17	61.08	41.03	57.10	43.87	47.40	26.48	101.23	64.14	31.99	434
146	53.32	47.54	30.03	37.41	24.94	189.35	36.24	24.34	33.87	26.03	19.68	15.71	60.05	38.05	18.98	432
148	15.98	14.25	10.35	11.21	7.47	56.75	10.86	7.29	10.15	7.80	8.43	4.71	18.00	11.40	5.69	430
150	88.02	78.48	49.58	61.76	41.17	312.60	59.83	40.18	55.92	42.97	46.42	25.94	99.14	62.82	31.33	428
152	314.62	280.53	177.22	220.75	147.16	1117.40	213.85	143.63	199.89	153.59	115.15	92.72	354.39	224.55	112.01	426
154	82.52	84.62	53.46	66.59	38.60	293.09	56.09	37.67	52.43	40.29	43.52	24.32	92.95	58.90	23.38	424
156	287.15	256.04	186.01	201.48	134.31	1019.83	195.18	131.09	182.43	140.18	151.44	84.62	323.45	204.95	102.23	422
158	55.28	58.68	35.81	44.60	25.86	196.32	37.57	25.24	35.12	26.98	29.15	16.29	62.26	39.45	19.68	420
160	83.36	74.33	46.96	58.49	38.99	286.07	56.66	38.06	52.95	40.70	43.97	24.57	93.90	59.50	29.68	418
162	167.96	172.23	108.80	135.53	78.56	596.53	114.16	88.18	106.71	81.99	88.58	49.50	169.19	119.88	59.79	416
164	24.39	21.74	13.74	17.11	11.41	86.61	16.58	11.13	15.49	11.91	12.86	7.19	27.47	17.41	8.68	414
166	183.32	187.98	118.75	147.92	98.61	651.08	124.61	96.25	116.47	89.49	96.68	54.03	206.50	130.84	65.26	412
168	129.34	132.62	83.78	104.36	69.57	459.34	87.91	59.05	82.17	63.14	68.21	38.12	145.68	92.31	46.04	410
170	25.40	26.04	16.45	20.49	13.66	90.20	17.26	13.33	16.13	12.40	13.39	7.48	28.61	18.13	9.04	408
172	13.51	13.85	8.75	10.90	7.27	47.99	9.18	7.09	8.58	6.60	7.13	3.98	15.22	9.64	4.81	406
174	78.57	52.94	33.45	41.66	27.77	210.89	40.36	27.11	37.72	28.99	27.23	15.22	66.08	36.85	18.38	404
176	23.55	15.87	10.02	12.49	8.32	63.20	12.09	8.12	9.83	7.55	8.16	4.56	17.43	11.04	5.51	402
178	88.13	59.38	37.51	46.73	31.15	236.53	45.27	30.40	36.79	32.51	30.54	17.07	65.23	41.33	20.62	400
180	29.18	19.66	12.42	15.47	10.31	78.31	14.99	10.07	14.01	10.76	10.11	5.65	21.60	13.68	6.83	398
182	111.25	74.96	47.36	58.99	39.32	259.64	57.14	38.38	46.45	35.69	38.56	21.54	82.35	52.18	26.03	396
184	6.65	4.48	2.83	3.53	2.35	17.86	3.42	2.30	2.78	2.45	2.31	1.29	4.93	3.12	1.56	394
186	9.98	6.73	4.25	5.29	3.53	26.79	5.13	3.44	4.17	3.68	3.46	1.93	7.39	4.68	2.34	392
188	1.57	1.61	1.02	1.27	0.84	6.41	1.23	0.82	1.00	0.77	0.83	0.46	1.77	1.12	0.56	390
190	59.09	60.59	38.28	47.68	31.78	241.34	46.19	31.02	43.17	33.17	31.16	17.41	66.56	42.17	21.04	388
192	38.01	38.98	24.62	30.67	20.45	155.24	29.71	19.36	24.15	21.34	20.05	11.20	42.81	27.13	13.53	386
194	6.90	10.76	4.47	5.56	3.71	28.16	5.39	3.62	5.04	3.87	3.64	2.03	8.93	4.92	2.45	384
196	119.92	122.96	67.55	84.14	56.09	425.89	81.51	54.75	76.19	58.54	63.24	35.34	135.07	85.59	42.69	382
198	35.66	36.56	23.10	28.77	16.68	126.63	24.24	16.28	22.65	17.41	18.80	10.51	40.16	25.45	12.69	380
200	124.85	128.02	80.88	100.74	58.40	509.93	84.86	65.55	79.32	70.09	65.85	36.79	140.69	89.11	44.45	378
202	70.41	72.20	45.61	56.82	32.94	250.08	47.86	32.15	44.74	34.37	37.14	20.75	79.31	50.26	25.07	376
204	62.89	74.16	40.74	50.74	33.83	256.85	49.16	33.02	45.95	35.30	38.14	21.31	81.46	51.62	25.75	374
206	66.55	68.24	43.11	53.70	31.13	271.79	45.23	34.94	42.28	37.36	35.10	19.61	74.96	47.50	23.69	372
208	95.64	98.07	61.96	77.17	44.74	390.63	65.01	50.21	60.76	53.69	50.44	28.19	107.73	68.26	34.05	370
210	35.61	37.54	23.71	29.54	17.12	149.52	24.88	16.71	23.26	17.87	19.31	10.79	41.24	26.13	13.03	368
212	17.99	21.21	11.65	16.69	9.68	84.49	14.06	10.86	15.11	11.61	10.91	6.10	23.30	14.76	7.36	366
214	38.66	39.64	25.04	31.19	20.79	157.89	30.22	20.30	28.24	21.70	23.45	13.10	50.08	31.73	15.83	364
216	25.84	30.47	16.74	20.85	13.90	121.36	20.20	13.56	16.88	14.50	15.67	8.76	33.47	21.21	10.58	362
218	95.53	117.39	64.49	92.37	53.55	467.57	77.81	60.10	72.73	64.27	60.38	33.74	128.95	81.71	40.75	360
220	30.58	30.58	16.80	24.07	13.95	121.81	20.27	15.66	18.95	16.74	15.73	8.79	33.59	21.29	10.62	358
222	9.98	10.23	6.46	8.05	4.67	40.76	5.24	6.34	6.34	5.60	5.24	2.59	11.24	7.12	3.55	356
224	7.65	9.03	4.96	6.18	4.12	35.95	5.98	4.02	5.59	4.30	4.64	2.59	9.91	6.28	3.13	354
226	252.23	258.64	163.39	203.52	135.68	1030.19	197.16	132.42	184.29	141.60	152.98	85.48	326.73	207.03	103.26	352
228	15.79	16.20	10.23	12.74	5.95	64.51	8.64	8.29	35.15	27.01	29.18	16.31	62.33	39.49	4.53	350
230	48.12	49.34	31.17	38.82	25.88	196.52	37.61	25.26	35.15	27.01	29.18	16.31	62.33	39.49	4.53	348
232	26.52	27.19	17.18	21.40	14.27	108.31	20.73	13.92	19.38	14.89	16.08	8.99	34.35	21.77	10.86	346
234	94.74	102.28	64.61	80.48	53.65	407.38	77.96	52.37	72.87	55.99	60.49	33.80	129.20	81.87	40.83	344
236	54.99	56.39	35.62	44.37	29.58	224.59	42.98	28.87	40.18	30.87	33.35	18.64	49.86	31.59	15.76	342
238	25.79	26.44	16.71	20.81	9.71	105.33	14.11	13.54	18.84	14.48	10.95	6.12	61.73	14.82	7.39	340
240	45.39	46.54	29.40	36.62	24.41	185.37	35.48	23.83	33.16	25.48	27.53	15.38	58.79	37.25	13.01	338
242	105.20	107.87	68.15	84.89	56.59	429.68	82.23	55.23	76.86	59.06	63.81	35.65	136.27	86.35	30.15	336
244	398.43	408.55	258.10	321.49	214.32	1627.31	311.44	209.18	291.10	223.68	241.65	135.03	516.11	327.03	163.12	334
246	17.65	18.10	11.43	14.24	9.49	72.08	13.79	9.27	12.89	9.91	12.41	5.98	22.86	14.48	6.06	332
248	17.79	20.98	11.53	14.36	9.57	83.58	13.91	10.74	14.95	11.49	12.41	6.03	23.05	14.60	7.28	330
250	13.06	13.40	8.46	10.54	7.03	53.36	10.21	6.86	9.55	7.33	7.92	4.73	16.92	10.72	5.35	328

To LATA *	460	939	952	953	462	464	466	468	470	472	474	956	476	477	478	480
120	233.05	36.23	137.17	10.21	30.32	33.77	70.93	59.01	65.88	23.22	58.03	37.18	63.32	29.56	36.86	23.86
121	194.82	30.28	114.67	8.54	25.35	28.23	59.29	49.33	78.67	27.74	48.51	31.08	52.93	35.30	30.82	19.96
122	106.97	16.63	62.96	4.69	13.92	15.50	32.55	27.09	43.20	15.23	26.63	17.07	29.06	19.38	16.92	10.96
123	161.67	25.13	95.16	7.08	21.04	23.45	49.20	40.94	65.18	23.02	40.26	25.79	62.76	29.29	36.53	16.57
124	101.70	157.11	594.90	44.29	131.51	146.45	307.60	255.93	408.14	143.89	251.66	161.26	274.61	183.14	159.87	103.57
125	194.21	30.19	114.31	8.51	25.27	28.14	59.11	49.18	78.43	27.65	48.36	30.99	52.77	35.19	43.89	19.90
126	625.74	97.27	368.31	27.42	81.42	90.67	190.44	158.45	252.69	89.08	155.81	99.84	242.88	113.38	141.40	64.12
127	2338.16	347.92	1317.40	140.12	291.23	324.32	681.18	809.64	903.83	318.64	557.31	357.10	868.73	405.56	505.76	229.35
128	149.88	39.30	88.22	9.38	19.50	21.72	45.61	54.22	60.52	21.34	37.32	23.91	58.17	27.16	33.87	15.36
129	255.62	23.74	150.46	11.20	33.26	37.04	77.80	64.73	103.23	36.39	64.63	40.78	99.22	46.32	57.76	26.19
130	314.40	48.87	185.05	19.68	40.91	45.56	95.68	113.73	126.96	44.76	78.28	50.16	122.03	56.97	71.04	32.22
131	127.71	19.85	75.17	7.99	16.62	18.51	36.87	46.20	51.57	16.18	31.80	20.38	49.57	23.14	28.66	13.09
132	325.99	50.67	191.88	20.41	48.78	47.24	114.09	117.92	131.64	46.41	81.17	59.81	126.53	59.07	73.66	47.72
133	193.40	12.07	113.83	12.11	25.16	28.02	58.86	69.96	78.10	27.53	48.16	30.86	75.06	35.04	43.70	19.82
134	82.80	12.87	48.73	3.63	7.54	8.40	17.64	20.97	23.40	8.25	14.43	10.63	22.50	10.50	13.10	8.48
135	319.28	49.63	268.47	19.99	41.54	46.26	97.17	115.49	128.93	45.45	79.50	58.58	123.92	57.86	72.15	46.75
136	1141.26	177.41	671.74	71.45	148.50	165.37	347.34	412.84	460.87	162.47	284.17	182.09	442.97	206.60	257.69	116.95
137	299.35	66.48	251.71	18.74	44.79	43.38	104.77	108.29	120.88	42.62	85.72	54.92	116.19	54.24	67.64	43.82
138	1041.61	231.31	875.85	65.21	135.53	150.93	317.01	375.79	420.63	148.29	259.36	191.12	404.29	188.74	235.37	152.48
139	200.51	41.53	168.60	12.55	30.00	29.05	70.18	72.55	80.97	28.55	57.42	36.79	77.83	36.33	45.31	29.35
140	302.40	47.01	177.99	18.93	39.35	43.82	92.03	109.39	122.11	43.05	75.30	55.48	117.37	54.79	68.33	30.99
141	609.27	135.30	512.31	38.14	91.17	101.53	213.24	220.40	282.94	99.78	174.46	111.79	236.48	110.40	137.68	89.19
142	88.46	13.75	74.38	5.54	13.24	14.74	30.96	32.00	35.72	12.59	25.33	16.23	34.34	16.03	19.99	12.95
143	949.98	147.67	559.16	41.63	99.51	96.36	232.74	240.55	268.54	94.67	190.42	122.01	258.11	120.50	150.27	97.35
144	670.22	104.18	394.49	29.37	70.20	67.98	164.20	169.71	189.45	66.79	134.34	86.08	182.10	85.01	106.01	68.68
145	131.60	20.46	77.46	5.77	13.78	13.95	32.24	33.32	37.20	13.11	26.38	16.90	35.76	16.69	20.82	13.49
146	70.01	10.88	41.21	3.07	6.38	7.10	17.15	17.73	19.79	6.98	14.03	8.99	19.02	8.88	11.07	7.17
147	267.56	41.59	157.49	11.73	28.03	31.21	65.55	67.75	88.98	30.66	53.63	52.29	89.60	39.03	48.67	27.42
148	80.18	12.46	47.20	3.51	8.40	9.35	19.64	20.30	22.67	9.19	16.07	10.30	21.79	10.17	12.68	8.22
149	300.10	46.65	176.64	13.15	31.43	30.44	73.52	75.99	84.83	60.15	38.54	38.54	81.54	38.06	47.17	30.75
150	99.36	15.44	58.48	4.35	10.41	11.59	24.34	25.16	32.30	11.39	19.92	19.42	26.99	14.49	18.07	10.18
151	378.83	58.89	223.98	16.60	34.51	38.43	92.81	95.93	107.09	37.75	75.93	48.66	102.93	48.05	59.92	38.82
152	22.66	3.52	13.34	0.99	2.37	2.64	5.55	5.74	7.37	2.60	4.94	2.91	6.16	3.31	3.58	2.32
153	33.99	5.28	20.01	1.49	3.56	3.96	8.33	8.61	11.05	3.90	6.81	4.37	9.24	4.31	5.38	3.48
154	8.13	1.26	4.79	0.36	0.85	0.95	1.99	2.06	2.64	0.93	1.63	1.04	2.21	1.03	1.29	0.83
155	306.20	47.60	180.23	13.42	32.07	35.12	114.16	77.54	99.54	35.09	61.38	59.85	95.67	44.66	55.70	31.38
156	196.97	30.62	115.94	8.63	20.63	22.98	48.26	49.88	64.03	22.57	39.48	26.30	53.52	28.73	31.16	20.18
157	35.34	5.56	21.03	1.57	3.74	4.17	13.32	9.05	11.62	4.10	12.50	6.98	11.16	5.21	6.50	3.66
158	434.99	67.62	365.76	27.23	65.09	72.49	152.24	157.35	202.01	71.22	124.56	79.81	158.84	78.82	98.29	63.68
159	129.34	28.72	108.75	12.35	19.35	21.55	45.27	46.79	60.06	21.17	37.04	23.73	50.20	23.44	29.23	18.93
160	646.98	100.57	380.81	28.35	103.13	75.47	241.21	183.83	210.32	74.15	129.68	63.10	202.15	94.37	117.69	66.30
161	255.42	56.72	214.71	15.99	38.22	42.56	89.40	92.40	118.62	41.82	73.14	48.13	99.14	46.28	57.72	37.39
162	262.33	40.78	220.59	16.42	39.26	43.72	91.82	94.90	121.83	42.95	75.12	48.13	101.82	47.53	59.28	38.40
163	344.84	53.60	203.97	15.11	54.97	40.22	128.56	100.42	112.10	39.52	69.94	44.29	107.75	50.30	62.73	35.34
164	495.62	77.04	231.72	21.72	79.00	87.88	184.78	144.32	161.11	56.80	99.34	63.66	154.86	72.29	90.16	50.79
165	132.79	29.49	111.66	8.31	19.67	22.13	46.48	48.04	61.67	21.74	38.03	24.37	51.54	27.67	30.01	19.44
166	107.20	16.66	63.10	4.70	13.03	13.93	39.97	31.22	53.03	12.29	33.77	33.49	55.49	15.64	19.50	12.63
167	161.26	25.07	135.60	10.10	24.13	26.87	56.44	67.09	74.89	26.40	46.18	29.59	62.59	33.60	36.14	23.61
168	107.78	23.93	90.63	6.75	24.54	17.86	37.72	44.84	50.05	17.65	30.86	19.78	41.83	22.46	24.36	15.78
169	415.28	92.22	349.18	26.00	94.56	105.30	221.17	172.75	192.85	67.99	118.91	76.19	185.36	86.53	107.91	60.79
170	154.55	24.03	90.97	6.77	24.64	27.43	57.62	45.01	50.24	17.71	30.98	19.85	48.29	22.54	28.11	15.84
171	51.71	8.04	30.44	2.27	8.24	9.18	19.28	15.06	16.81	5.93	10.37	6.64	16.16	7.54	9.41	5.30
172	7.09	26.85	2.00	7.27	8.10	17.00	17.00	13.28	14.83	8.23	9.14	5.86	14.25	6.65	8.30	4.67
173	163.56	894.74	65.87	157.45	175.33	368.26	368.26	380.62	488.63	149.79	301.29	193.06	408.40	190.66	237.76	154.03
174	65.69	10.24	38.78	2.89	8.57	9.55	20.05	23.83	26.61	9.38	16.41	10.51	25.57	11.94	14.89	6.75
175	31.20	118.14	12.57	30.03	33.45	70.25	72.61	81.05	28.57	36.83	77.91	36.37	45.36	29.38	45.36	29.38
176	110.63	17.20	55.12	6.93	16.55	38.72	40.02	40.02	51.38	15.75	31.68	20.30	42.94	20.05	25.00	16.19
177	416.08	64.68	244.90	26.05	62.26	69.33	145.62	150.51	193.22	59.23	72.66	76.34	161.50	75.39	94.02	60.91
178	229.39	35.66	135.02	4.71	14.00	15.59	80.29	82.98	92.63	32.66	57.12	36.60	89.04	41.57	51.84	33.58
179	107.58	16.72	63.32	4.71	14.00	15.59	32.74	38.92	43.44	15.32	26.79	17.16	41.76	19.49	24.31	15.75
180	189.33	29.43	111.44	11.85	28.33	31.55	66.26	68.49	87.92	26.95	47.14	30.21	73.49	34.31	42.78	27.72
181	436.85	68.22	258.31	27.47	65.67	73.13	153.60	158.75	203.80	62.48	109.27	70.02	170.34	79.52	99.17	64.24
182	162.06	258.36	1397.56	104.05	248.71	276.96	581.72	691.42	771.86	272.11	475.93	304.96	645.12	346.34	375.58	243.30
183	360.73	11.44	43.33	4.61	11.02	12.27	25.77	30.52	34.19	10.48	18.33	11.75	28.57	13.34	16.64	10.78
184	106.04	16.48	62.41	4.65	11.11	18.82	46.99	52.46	52.46	12.15	21.25	13.62	33.13	15.47	19.29	12.50
185	54.50	36.47	32.08	3.41	8.16	9.08	19.07	22.67	25.31	7.76	13.57	8.70	21.15	9.88	12.32	7.98

To LATA #	482	484	486	488	490	Traffic(E-Lang)	520	521	522	524	526	528	530	532	534	536
120	78.32	11.32	50.44	40.94	33.30	29.24	157.32	8.91	32.38	101.15	14.59	61.04	13.82	57.74	36.01	101.34
122	65.47	9.46	42.17	34.23	27.84	24.44	131.51	7.45	27.07	84.55	12.19	51.03	11.55	48.27	30.10	84.71
124	35.95	5.19	23.15	18.79	15.29	13.42	103.15	4.09	14.86	46.42	6.70	28.02	6.34	26.50	16.53	46.51
126	54.33	7.85	34.99	28.40	23.10	20.28	155.91	6.18	22.46	70.17	10.12	42.35	9.58	40.06	24.98	70.30
128	339.67	49.08	218.76	177.57	144.43	126.80	682.26	38.63	140.41	438.65	63.26	264.73	59.92	250.42	156.16	439.48
130	55.27	9.43	42.03	34.12	27.75	24.36	131.10	7.42	26.98	84.29	12.16	50.97	11.51	48.12	30.01	84.45
132	210.29	30.39	135.44	109.93	89.42	78.50	603.42	23.91	86.93	271.57	39.17	163.90	37.09	155.04	96.68	272.09
134	752.19	108.69	484.43	393.22	319.64	260.79	2158.37	122.19	310.95	971.38	140.10	586.24	132.68	554.54	345.82	973.22
136	85.91	12.41	55.33	44.91	36.53	32.07	246.51	8.18	20.82	65.05	9.38	39.26	8.88	37.13	23.16	65.17
138	105.66	15.27	68.05	55.23	44.93	39.44	303.18	17.16	62.40	194.93	19.68	82.35	18.64	77.90	48.58	136.71
140	42.92	6.20	27.64	22.44	18.25	16.02	123.16	6.97	23.35	79.18	7.99	33.45	7.57	31.64	19.73	55.53
142	156.51	15.83	70.56	57.27	46.58	40.90	314.36	17.80	64.70	202.11	29.15	121.98	27.61	80.77	71.95	141.75
144	65.00	9.39	41.86	33.98	27.64	24.26	186.50	10.56	38.38	119.91	12.11	72.36	16.38	47.92	42.69	84.09
146	19.48	2.81	12.54	10.18	8.28	7.27	55.89	3.16	8.05	25.15	3.63	15.18	3.44	14.36	8.96	25.20
148	107.30	15.50	69.10	56.09	45.63	40.05	307.89	17.43	44.36	138.57	19.98	83.63	18.93	79.10	49.33	138.83
150	393.55	55.42	247.01	200.50	163.09	143.18	1100.56	62.31	158.55	495.31	71.44	298.93	67.66	282.76	176.34	496.25
152	143.72	20.77	64.79	52.59	42.78	37.55	288.67	16.34	59.41	185.60	18.74	112.01	25.35	74.17	46.25	130.16
154	50.08	50.58	225.45	183.00	148.85	130.68	1004.47	55.87	206.73	452.06	65.20	272.83	61.75	258.07	160.94	452.92
156	96.27	13.91	43.40	35.23	40.93	35.94	193.36	10.95	39.80	124.32	17.93	75.03	16.98	49.68	44.26	87.19
158	101.63	14.69	65.45	53.13	43.21	37.94	291.61	16.51	60.02	131.24	18.93	79.21	17.93	74.92	46.72	131.49
160	292.51	42.27	188.39	152.91	124.38	109.19	567.54	33.26	120.92	377.75	54.48	227.98	51.60	215.65	134.48	264.92
162	42.47	6.14	27.35	15.54	12.64	11.10	85.31	4.83	17.56	54.85	7.91	33.10	7.49	31.31	19.53	38.17
164	319.26	46.13	143.93	116.83	135.76	119.18	641.27	36.31	131.98	412.30	59.46	248.83	56.32	164.76	102.75	289.15
166	225.24	32.55	101.54	82.42	95.78	58.86	452.42	25.61	93.11	290.88	29.37	175.55	39.73	116.24	72.49	204.00
168	44.23	6.39	19.94	16.18	18.61	16.51	88.84	5.03	18.28	57.12	8.24	34.47	7.80	22.82	20.33	40.06
170	23.53	3.40	10.61	8.61	7.00	6.15	47.26	2.68	9.73	21.27	3.07	18.34	4.15	12.14	7.57	21.31
172	57.91	12.99	57.91	47.01	38.24	33.57	180.62	10.23	37.17	116.12	16.75	70.08	15.86	66.29	41.34	116.34
174	26.95	3.89	17.35	14.09	11.46	10.06	54.13	3.06	11.14	34.80	5.02	21.00	4.75	13.91	12.39	24.41
176	64.95	14.57	64.95	52.72	42.89	37.65	202.58	11.47	13.69	130.25	18.78	78.60	17.79	52.05	46.37	91.34
178	100.86	14.57	17.46	17.46	14.20	12.46	67.07	3.80	13.80	43.12	6.22	26.02	5.89	24.62	15.35	30.24
180	33.39	4.82	21.50	17.46	14.20	12.46	67.07	3.80	13.80	43.12	6.22	26.02	5.89	24.62	15.35	30.24
182	127.32	18.40	57.40	47.53	285.73	14.48	52.63	115.09	16.60	99.23	22.46	65.70	22.46	65.70	40.97	115.31
184	7.62	1.10	4.90	3.98	3.24	2.84	15.30	0.87	3.15	1.42	1.42	5.94	1.34	3.93	3.50	6.90
186	11.42	1.65	7.36	5.97	4.86	4.26	22.94	1.30	4.72	14.75	2.13	8.90	2.01	5.90	5.25	10.35
188	2.73	0.40	1.76	1.43	1.16	1.02	5.49	0.31	1.13	3.53	0.51	2.13	0.48	1.41	1.26	2.48
190	103.91	14.87	66.27	53.80	43.76	38.41	237.70	11.70	42.54	132.89	19.17	80.20	18.15	75.87	47.31	133.14
192	65.20	9.57	42.63	34.60	28.15	24.71	132.96	7.53	27.36	85.49	12.33	51.59	11.68	48.80	30.43	85.65
194	12.01	1.74	7.73	6.28	5.11	4.48	27.74	1.37	4.96	15.51	2.24	9.36	2.12	8.85	5.52	15.54
196	208.84	30.18	134.50	109.17	88.80	77.98	482.40	23.75	86.33	269.69	38.90	162.76	36.84	153.96	96.01	270.21
198	62.10	8.97	39.99	32.46	26.80	23.18	124.72	7.06	25.67	80.19	11.57	48.40	10.95	45.78	28.55	80.34
200	217.43	31.42	140.03	113.66	92.46	81.17	503.24	28.43	89.88	280.79	40.50	169.46	38.35	160.30	99.96	281.32
202	122.63	17.72	78.98	64.11	52.14	45.78	233.26	13.94	50.69	158.36	22.84	95.57	21.63	90.41	56.38	158.66
204	125.95	18.20	81.11	65.84	53.56	47.02	280.93	14.32	52.07	162.85	23.46	98.16	22.22	92.85	57.91	162.96
206	115.89	16.75	74.64	60.58	49.28	43.26	267.70	15.16	47.91	149.66	21.58	90.32	20.44	85.44	53.28	149.95
208	166.56	24.07	107.27	87.07	70.83	62.18	384.74	21.78	79.18	215.10	31.02	129.82	29.38	122.80	76.58	215.51
210	63.76	9.21	41.06	33.33	27.11	23.80	147.27	7.25	26.36	82.33	11.87	49.69	11.25	47.00	29.31	82.49
212	42.15	5.21	23.20	18.83	15.32	13.45	126.64	4.71	17.13	53.50	7.72	32.29	7.31	26.56	19.05	46.61
214	77.42	11.19	49.86	40.47	32.92	28.90	178.84	10.12	36.81	114.98	14.42	60.34	13.66	57.08	35.60	100.17
216	51.75	7.48	33.33	27.05	22.00	19.32	119.53	6.77	24.60	76.85	9.64	40.33	9.13	38.15	23.79	66.95
218	199.37	28.81	128.40	104.22	84.77	74.42	460.52	26.07	94.78	296.08	37.13	178.69	40.44	148.98	91.66	257.95
220	51.94	7.51	33.45	27.15	22.09	19.39	119.98	6.79	24.69	77.14	9.67	46.55	10.54	38.29	27.46	67.20
222	17.38	2.51	11.19	9.09	7.39	6.49	40.14	2.27	8.26	22.44	3.24	13.54	3.07	12.81	7.99	22.49
224	15.33	2.21	9.87	8.01	6.52	5.72	53.88	2.00	7.29	22.76	3.28	13.74	3.11	11.30	8.10	19.83
226	505.16	73.00	325.34	264.08	214.80	188.57	1166.86	57.44	208.83	652.36	94.09	393.71	89.11	372.42	232.25	653.60
228	31.63	3.20	14.26	11.58	9.42	8.27	63.54	3.60	13.08	40.85	5.89	23.32	5.58	23.32	14.54	40.93
230	96.37	13.92	62.06	35.26	40.98	35.97	232.59	10.96	39.84	124.45	17.95	75.10	17.00	71.04	44.30	124.68
232	53.11	7.67	34.21	27.77	22.58	19.83	122.69	6.95	21.96	68.59	9.89	41.39	9.37	39.16	24.42	68.72
234	199.76	28.87	128.65	104.73	84.94	74.57	461.42	26.12	82.58	257.97	37.21	155.69	35.24	147.27	91.84	258.46
236	110.13	15.91	70.93	57.57	46.83	41.11	254.39	14.40	45.53	163.56	20.51	85.83	19.43	81.19	50.63	142.49
238	51.65	7.46	33.26	27.00	15.37	19.28	119.30	6.75	21.35	76.70	9.62	40.25	9.11	36.08	27.31	66.82
240	90.90	13.13	58.54	47.52	38.65	33.93	209.96	11.89	43.21	134.99	16.93	70.84	16.03	67.01	48.06	117.61
242	210.69	30.45	135.69	110.14	89.59	78.65	486.68	27.55	100.16	312.90	39.24	164.21	37.17	155.33	111.40	272.61
244	797.97	115.31	513.91	417.15	339.31	297.88	1843.21	104.35	379.35	1185.06	148.62	621.91	140.76	588.28	421.90	1032.44
246	35.34	5.11	22.76	18.48	15.03	13.19	81.64	4.62	16.80	52.49	6.58	27.55	6.23	26.06	18.69	45.73
248	40.98	5.92	26.39	21.42	17.43	15.30	125.26	7.09	16.94	52.02	7.63	31.94	7.23	30.21	18.84	53.02
250	26.17	3.78	16.85	13.68	11.13	9.77	60.44	3.42	12.44	38.86	4.87	20.39	4.62	22.18	13.83	33.85

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 1

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To LATA #	538	540	542	544	546	548	550	552	554	556	558	560	562	564	566	568
120	62.01	17.64	25.88	15.04	24.05	13.33	11.65	214.12	37.93	23.64	36.80	224.94	26.01	39.56	90.92	566
122	51.83	14.74	21.64	12.57	20.10	11.14	9.74	178.99	31.71	19.76	32.44	180.04	21.74	33.09	76.00	566
124	28.46	14.17	11.88	6.90	11.04	6.12	5.35	98.28	17.41	10.85	17.01	103.24	11.94	18.17	41.73	566
126	43.01	21.41	17.95	10.43	16.68	9.25	8.08	148.54	26.31	16.40	26.92	156.04	18.04	27.46	63.07	566
128	268.91	76.48	112.25	65.21	104.30	57.80	50.51	928.60	164.51	102.50	168.28	975.52	112.80	171.64	394.30	566
130	51.67	14.70	21.57	12.53	20.04	11.11	9.71	178.43	31.61	19.70	32.34	187.45	21.68	32.98	75.77	566
132	166.49	82.86	69.49	40.37	64.57	36.79	31.27	574.91	101.85	63.46	104.18	603.96	69.84	106.27	244.12	566
134	39.88	19.85	16.64	9.67	15.47	8.57	7.49	137.70	24.39	15.20	24.95	144.66	16.73	25.45	58.47	566
136	68.01	33.85	28.39	16.49	26.38	14.62	12.77	234.86	41.61	25.92	42.56	246.73	28.53	43.41	99.72	566
138	83.65	41.63	34.92	20.28	32.44	17.98	15.71	288.86	51.17	31.69	52.36	303.45	35.09	53.39	122.65	566
140	33.98	16.91	14.18	8.24	13.18	7.30	6.38	117.34	20.79	12.95	21.26	123.26	14.25	21.69	49.82	566
142	86.73	43.17	36.20	21.03	33.64	18.64	16.29	299.51	36.38	23.06	34.28	314.64	26.38	55.36	127.18	566
144	51.46	25.61	21.48	12.48	19.96	11.06	9.66	177.69	31.48	19.61	32.20	186.66	21.58	32.64	75.45	566
146	15.42	7.67	6.44	3.74	5.98	3.31	2.90	53.25	9.43	5.88	9.65	55.94	6.47	9.84	22.61	566
148	84.95	42.28	35.46	20.60	32.95	18.26	15.96	293.34	51.97	32.38	53.16	308.16	35.63	54.22	124.56	566
150	303.65	151.13	126.75	73.63	117.77	65.27	57.03	1048.56	185.76	116.74	190.02	1101.53	127.37	193.82	445.23	566
152	79.65	39.64	33.24	19.31	30.89	17.12	14.96	275.03	30.36	20.64	49.84	288.93	33.41	50.84	116.78	566
154	277.14	137.93	115.68	67.20	107.49	59.57	52.05	957.00	169.54	105.64	173.43	1005.35	116.25	176.89	406.36	566
156	76.21	26.55	22.27	12.94	20.69	11.47	10.02	184.23	32.64	20.34	33.39	193.53	22.38	34.05	78.22	566
158	80.46	40.04	33.58	19.51	31.21	17.29	15.11	277.83	49.22	30.67	50.35	291.87	33.75	51.35	117.97	566
160	231.58	80.68	67.66	39.31	62.87	34.84	30.45	559.78	141.67	61.79	101.44	588.06	68.00	103.47	237.69	566
162	33.62	11.71	9.82	5.71	9.13	5.06	4.42	81.28	14.40	8.97	14.73	85.38	9.87	15.02	34.51	566
164	176.93	88.06	73.85	42.90	68.62	38.03	33.23	610.97	108.24	67.44	110.72	641.84	74.22	112.93	259.43	566
166	124.82	62.13	52.10	30.27	48.41	26.83	23.45	431.04	76.36	47.58	78.11	452.82	52.36	79.67	183.03	566
168	24.51	12.20	10.23	5.94	9.51	5.27	4.60	84.64	14.99	9.34	15.34	88.92	10.28	15.64	35.94	566
170	13.04	6.49	5.44	3.16	5.06	2.80	2.45	45.03	7.98	4.97	8.16	47.30	5.47	8.32	19.12	566
172	21.19	24.80	20.80	12.08	19.33	10.71	9.36	245.83	43.55	18.99	31.18	180.78	29.86	31.81	73.07	566
174	21.33	7.43	6.23	3.62	5.79	3.21	2.80	151.57	9.14	5.69	9.35	54.17	6.26	9.53	21.90	566
176	55.89	27.82	23.33	13.55	21.68	12.01	10.50	193.01	34.19	21.30	34.98	202.76	23.45	35.68	81.95	566
178	26.44	9.21	7.72	4.19	7.18	3.98	3.48	63.90	16.17	7.05	11.58	67.13	11.09	11.81	27.13	566
180	70.56	35.12	29.45	17.11	27.36	15.17	13.25	243.64	43.16	26.89	44.15	255.95	29.60	45.03	103.45	566
182	6.03	2.10	1.76	1.02	1.84	0.91	0.79	14.57	3.69	1.61	2.64	15.31	1.77	2.69	6.19	566
184	9.04	3.15	2.64	1.54	2.46	1.36	1.19	21.86	5.53	2.41	3.96	22.96	2.66	4.04	9.28	566
186	81.47	28.38	23.80	13.83	22.12	17.51	10.71	281.33	49.84	31.05	35.69	295.54	34.17	36.40	83.62	566
188	52.41	18.26	15.31	8.90	14.23	7.89	6.89	126.68	32.06	13.98	22.96	133.08	15.39	23.42	53.79	566
190	9.51	3.31	2.78	1.61	2.58	1.20	1.25	32.83	5.82	3.62	4.16	34.49	3.99	4.25	9.76	566
192	165.34	57.60	48.31	28.06	44.89	24.88	21.74	399.65	101.15	44.12	72.42	419.85	48.55	73.87	169.70	566
194	49.15	17.13	14.36	8.34	13.35	7.40	6.46	118.83	30.07	13.12	21.53	124.83	14.44	21.96	50.46	566
196	172.14	59.97	50.30	29.22	46.73	27.00	22.63	594.42	105.31	65.61	75.40	624.43	72.21	76.91	176.68	566
198	97.08	33.82	28.37	16.48	26.36	14.61	12.76	234.67	59.39	25.90	42.53	246.53	28.51	43.38	99.55	566
200	99.71	34.74	29.13	16.93	27.07	21.43	13.11	344.32	61.00	26.61	43.68	253.20	41.83	44.55	102.34	566
202	31.97	31.97	26.81	15.57	24.91	19.72	17.23	316.83	56.13	34.97	40.19	332.84	38.49	40.99	94.17	566
204	131.87	45.94	38.53	22.38	51.14	28.34	24.77	455.36	80.67	50.26	82.52	478.37	55.31	58.92	135.35	566
206	50.47	17.59	14.75	8.57	13.70	10.85	6.64	174.30	30.88	13.47	22.11	128.17	21.17	22.55	51.81	566
208	32.80	9.94	11.91	6.92	11.06	6.13	5.36	98.49	17.45	10.87	17.85	103.47	11.96	18.21	41.82	566
210	61.30	21.36	17.91	10.40	23.77	13.18	11.51	211.66	37.50	23.36	26.85	222.36	25.71	27.39	62.91	566
212	40.97	14.27	11.97	6.95	15.99	8.81	7.69	141.47	25.06	15.62	25.64	148.61	17.18	18.30	42.05	566
214	157.84	54.99	46.12	38.27	61.22	33.93	29.65	545.04	96.56	60.16	98.77	572.58	66.21	70.52	231.43	566
216	41.12	14.33	17.16	9.97	15.95	8.84	7.72	142.00	25.16	15.67	25.73	149.17	17.25	26.25	60.30	566
218	13.76	4.79	4.02	2.34	5.34	2.96	2.58	47.51	8.42	5.24	8.61	49.91	5.77	6.15	14.12	566
220	12.14	4.23	3.07	2.94	4.71	2.61	2.28	41.91	7.42	4.63	7.59	44.02	5.09	7.75	17.79	566
222	399.93	139.33	116.85	67.88	108.58	60.17	52.58	1381.03	244.66	106.71	175.19	1015.56	117.43	178.69	410.48	566
224	25.04	8.73	7.32	4.25	6.80	3.77	3.29	60.54	10.72	6.68	10.97	63.60	7.35	11.19	25.70	566
226	76.29	26.58	22.29	12.95	20.71	11.48	10.03	184.41	46.67	20.36	33.42	193.73	22.40	34.09	78.30	566
228	42.05	14.65	12.29	7.14	11.42	9.04	5.53	145.20	25.72	11.22	18.42	106.78	12.35	18.79	43.16	566
230	158.15	55.10	46.21	26.84	42.94	33.99	20.79	546.11	96.75	60.28	69.28	401.59	66.34	70.66	162.32	566
232	87.19	30.38	25.48	14.80	33.82	18.74	11.46	301.08	53.34	33.23	38.19	221.41	25.60	38.96	89.49	566
234	40.89	14.25	11.95	9.92	15.86	8.79	7.68	141.20	25.01	15.59	17.91	103.83	12.01	18.27	41.97	566
236	171.96	58.07	21.03	17.45	27.91	15.47	13.52	248.50	44.02	27.43	45.03	261.05	30.19	32.15	73.86	566
238	166.80	58.11	48.74	40.45	64.69	35.85	31.33	578.01	102.04	63.58	73.07	605.11	69.97	74.53	171.21	566
240	631.74	220.10	184.58	153.19	245.02	135.79	118.66	2181.51	386.47	240.80	395.33	2291.73	265.00	282.26	648.41	566
242	27.98	9.75	11.68	6.79	10.85	6.01	5.26	96.62	17.12	10.67	17.51	101.51	11.74	12.50	28.72	566
244	32.44	9.83	11.78	6.84	10.94	6.06	5.30	97.42	19.85	10.75	17.66	102.35	11.83	18.01	41.37	566
246	20.72	7.22	6.65	5.02	8.03	4.45	3.89	71.53	12.67	7.90	12.96	75.15	8.69	9.26	30.37	566

To LATA #	648	650	652	960	654	656	658	From LATA #	660	664	666	668	670	672	674	676	720
120	29.62	17.34	26.20	5.60	27.54	151.04	40.86	47.56	71.72	85.96	27.38	37.01	84.98	132.06	674	44.33	15.78
122	24.76	14.50	21.90	4.68	23.02	126.26	34.16	39.76	59.95	71.72	22.89	30.94	71.04	110.39	674	37.06	13.19
124	13.60	7.96	12.03	2.57	12.64	69.33	18.75	38.20	32.92	39.45	12.57	16.99	39.01	60.61	674	20.35	7.24
126	20.55	12.03	18.18	3.89	19.10	104.78	28.35	32.99	49.75	59.63	18.99	25.68	58.95	91.61	674	30.75	10.94
128	73.41	75.22	113.63	24.30	119.43	655.03	177.21	206.25	311.02	372.80	118.73	160.52	368.55	572.70	674	192.25	68.42
130	14.11	14.45	21.84	4.67	22.95	125.87	34.05	39.63	59.76	71.63	22.81	30.84	70.82	110.05	674	36.94	13.15
920	79.53	46.57	70.35	15.04	73.94	405.54	109.71	127.69	192.55	230.80	73.50	99.38	228.18	354.57	674	119.02	42.36
132	284.48	166.58	251.64	53.80	264.48	1450.56	392.42	799.29	688.74	825.55	262.92	355.47	816.15	1268.24	674	425.74	151.52
133	19.05	11.15	16.85	3.60	17.71	97.13	26.28	33.52	46.12	56.28	17.61	23.87	54.65	84.93	674	28.51	10.15
134	32.96	19.02	28.74	6.14	30.21	165.67	44.82	91.29	78.66	94.29	30.03	40.60	93.21	144.85	674	48.62	17.31
136	39.96	23.40	61.86	13.23	37.15	203.76	55.12	112.27	96.75	115.96	36.93	49.93	114.64	178.15	674	59.80	21.28
138	16.23	9.50	14.36	3.07	15.09	82.77	22.39	45.61	39.30	47.11	15.00	20.28	46.57	72.37	674	24.29	6.65
140	41.43	24.26	64.14	13.71	38.52	211.27	57.15	116.41	100.31	210.42	67.01	81.77	118.87	184.72	674	108.51	22.07
974	24.58	14.39	38.05	8.14	22.85	125.34	33.91	69.06	59.51	124.83	39.76	30.71	70.52	109.59	674	64.38	13.09
220	7.37	4.31	6.52	1.39	6.85	37.56	10.16	20.70	17.83	21.38	6.81	9.20	21.13	32.84	674	11.02	3.92
222	40.58	23.76	35.90	7.68	37.73	206.92	55.98	114.02	98.25	117.76	37.50	50.71	116.42	180.91	674	60.73	21.61
224	145.06	84.94	128.31	27.43	134.86	739.64	200.10	407.56	351.19	420.95	134.06	181.25	416.16	646.68	674	217.08	77.26
226	38.05	22.28	33.66	7.20	35.37	194.01	52.48	106.90	92.12	193.22	61.54	47.54	109.16	169.62	674	56.94	20.27
228	132.39	77.52	117.11	25.04	123.08	675.06	182.62	371.97	320.53	384.20	122.36	165.43	379.82	590.22	674	198.13	70.52
230	25.49	14.92	39.45	8.44	23.69	129.95	35.16	71.61	61.70	129.43	41.22	31.85	73.12	113.62	674	66.75	13.57
232	38.44	22.51	34.00	7.27	35.73	195.98	53.02	107.99	93.05	111.54	36.52	48.03	110.27	171.35	674	57.52	20.47
234	77.44	45.34	119.88	25.63	72.00	394.86	106.82	217.58	187.49	393.27	125.25	96.76	222.17	345.23	674	202.81	41.25
924	11.24	6.58	17.41	3.72	10.45	57.33	15.51	31.59	27.22	57.10	18.19	14.05	32.26	50.13	674	29.45	5.99
236	84.52	49.49	74.77	15.99	78.58	430.98	116.59	237.48	204.63	429.24	136.70	105.61	242.49	376.81	674	126.49	45.02
238	59.63	34.92	52.75	11.28	55.44	304.06	82.26	167.54	144.37	302.83	96.44	14.63	171.08	265.84	674	89.24	31.76
240	11.71	6.86	18.13	2.21	10.89	59.70	16.15	32.90	28.35	59.46	18.94	14.63	33.59	52.20	674	17.52	6.24
242	6.23	3.65	5.51	1.18	5.79	31.76	8.59	17.50	15.08	18.08	5.76	7.78	17.87	27.77	674	9.32	3.32
244	23.81	13.94	36.85	7.88	22.13	121.39	32.84	66.89	57.64	120.90	38.50	29.75	68.30	106.13	674	35.63	12.68
246	7.19	4.18	6.31	1.35	6.63	36.38	9.84	20.04	17.27	36.23	11.54	8.91	20.47	31.80	674	10.68	3.80
248	26.70	15.63	23.62	5.05	24.82	136.15	36.83	75.02	64.64	135.60	43.18	33.36	76.60	119.03	674	39.96	14.22
250	8.84	5.18	13.68	1.67	8.22	45.07	12.19	24.84	21.40	44.89	14.30	11.05	25.36	39.41	674	13.23	4.71
252	33.71	19.74	29.81	6.37	31.34	171.86	46.49	94.70	61.60	97.81	54.51	42.12	96.70	150.26	674	50.44	17.95
927	2.02	1.18	3.12	0.67	1.87	10.28	2.78	5.66	4.88	10.24	3.26	2.52	5.78	8.99	674	3.02	1.07
928	3.02	1.77	4.68	0.57	2.81	15.42	4.17	8.50	7.32	15.36	4.89	3.78	8.68	13.48	674	4.53	1.61
929	0.72	0.42	1.12	0.24	0.67	3.69	1.00	2.03	1.75	3.68	1.17	0.90	2.08	3.23	674	1.08	0.39
254	27.24	15.95	42.17	9.02	25.33	138.91	37.58	76.54	65.96	138.35	44.06	34.04	78.16	121.45	674	71.35	14.51
256	17.52	10.26	27.13	5.80	16.29	89.36	24.17	49.24	42.43	89.00	28.34	21.90	50.28	78.13	674	45.90	9.33
932	3.18	1.86	4.92	1.05	2.96	16.21	4.39	8.93	7.70	16.15	5.14	3.97	9.12	14.17	674	8.33	1.69
320	55.29	32.37	85.59	18.30	51.40	281.91	76.27	155.34	133.86	280.78	89.42	69.08	158.62	246.46	674	144.80	51.53
322	15.44	9.63	25.45	5.44	15.28	83.82	22.68	46.19	39.80	83.49	26.59	20.54	47.16	73.29	674	43.05	8.76
324	57.56	33.71	89.11	19.05	53.52	293.51	79.40	161.73	139.36	292.33	93.10	71.93	165.14	256.62	674	150.75	53.65
326	33.46	19.01	50.26	10.75	30.18	185.54	42.58	91.21	78.60	164.87	52.51	40.57	93.14	144.73	674	85.02	17.29
328	33.34	19.52	51.62	11.04	31.00	170.02	45.98	93.68	80.73	169.33	53.93	42.91	167.41	260.14	674	87.32	31.08
328	30.68	17.97	47.49	10.15	28.52	156.44	42.32	86.20	74.28	155.81	49.62	38.34	154.04	239.36	674	80.35	28.60
922	44.10	25.82	68.26	14.59	41.00	224.85	60.83	123.89	106.76	223.94	71.32	55.10	221.39	344.02	674	115.49	41.10
923	16.88	9.88	26.13	5.59	15.69	86.06	23.28	47.42	40.96	85.72	27.30	21.09	48.42	75.25	674	44.20	15.73
330	9.54	5.58	14.76	3.16	8.87	69.48	18.60	26.80	23.09	48.44	15.43	20.86	47.89	74.41	674	24.98	8.89
332	20.50	12.00	31.73	6.78	19.06	149.31	40.39	57.59	49.62	104.09	33.15	44.82	102.91	159.91	674	53.68	19.11
334	13.70	8.02	21.21	4.53	12.74	69.85	18.90	38.49	33.17	69.57	22.16	29.96	68.78	106.88	674	35.88	12.77
336	52.78	30.91	81.70	17.47	49.07	384.47	104.01	148.30	127.79	268.05	85.37	115.42	264.99	411.78	674	138.23	49.20
338	13.75	8.05	21.29	4.55	12.78	100.17	27.10	38.64	33.29	69.83	22.24	30.07	69.04	107.28	674	36.01	12.82
937	4.60	2.69	7.12	1.52	4.28	23.46	6.35	12.93	11.14	23.37	7.44	10.06	23.10	35.89	674	12.05	4.29
938	4.06	2.38	6.28	1.34	3.77	29.56	6.00	11.40	9.82	20.61	6.56	8.87	20.37	31.66	674	10.63	3.78
340	133.74	78.31	207.02	44.26	124.33	681.92	184.48	375.75	323.78	679.17	216.30	167.11	671.44	1043.36	674	350.25	124.66
342	8.37	4.90	12.96	2.77	11.12	61.00	11.55	23.53	20.28	42.53	13.54	18.31	42.05	65.34	674	21.93	7.81
344	25.51	14.94	39.49	6.44	23.72	130.08	35.19	71.68	61.77	129.56	41.26	35.79	128.08	199.03	674	66.81	23.78
346	14.06	8.23	21.77	4.65	13.07	71.70	19.40	39.51	34.04	71.41	22.74	30.75	70.60	109.70	674	36.83	13.11
348	52.88	30.97	81.87	17.50	49.17	269.66	72.95	148.59	128.04	268.57	85.53	115.64	265.51	412.59	674	138.50	49.29
350	29.16	24.39	45.13	9.65	38.72	212.38	57.46	81.92	70.59	148.07	47.16	63.76	146.38	227.47	674	76.36	27.18
352	13.53	11.44	21.17	4.53	18.16	99.60	26.94	38.42	33.10	69.44	22.11	29.90	68.65	106.68	674	35.81	12.75
354	24.06	20.13	37.25	7.96	31.96	175.29	47.42	67.61	58.26	122.21	36.92	52.62	120.82	187.74	674	62.02	22.43
356	55.78	32.66	86.35	18.46	74.08	406.31	109.92	156.72	135.04	283.27	90.21	121.97	280.05	435.17	674	146.08	51.99
358	211.25	123.70	327.02	69.92	280.57	1538.82	416.30	593.55	511.46	1072.84	341.67	461.94	1060.62	1648.13	674	553.26	186.91
360	9.36	7.83	14.48	3.10	12.43	68.16	18.59	26.29	22.65	47.52	15.13	20.63	46.98	73.00	674	24.51	8.72
362	3.62	5.52	14.60	3.12	12.53	68.72	18.59	26.51	22.63	47.91	15.26	20.63	47.37	73.60	674	24.71	8.79
364	6.93	5.79	10.72	2.29	9.20	50.46	13.65	19.46	16.77	35.18	11.20	15.15	34.78	54.04	674	18.14	6.46

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 1

To LATA #	721	722	724	726	728	730	732	734	736	738	740	973
From LATA #	721	722	724	726	728	730	732	734	736	738	740	973
120	21.78	294.86	21.17	64.23	43.32	612.65	95.03	19.71	15.79	36.85	21.80	0.35
122	18.21	246.49	17.70	53.70	36.21	512.15	79.44	16.48	13.20	30.81	18.22	0.29
124	10.00	135.34	9.72	29.48	19.88	281.20	43.62	9.05	7.25	16.91	10.01	0.16
126	15.11	204.55	14.69	44.56	30.05	425.01	65.93	13.68	10.95	25.57	15.12	0.24
128	94.47	1278.74	91.83	278.57	187.87	2656.95	412.15	85.50	68.46	159.82	94.54	1.50
130	18.15	245.71	17.65	53.53	36.10	510.54	79.20	16.43	13.15	30.71	18.17	0.29
920	58.48	791.69	56.85	172.47	116.31	1644.96	255.17	52.93	42.38	98.95	58.53	0.93
132	209.19	2831.76	203.35	616.89	416.04	5883.79	912.70	189.33	151.60	353.92	209.35	3.32
133	14.01	189.62	13.62	41.31	27.86	394.00	61.12	12.68	10.15	23.70	14.02	0.22
134	23.89	323.42	23.23	70.46	47.52	671.99	104.24	21.62	17.31	40.42	23.91	0.38
136	29.39	397.77	28.56	86.65	58.44	826.49	128.21	26.59	21.30	49.72	29.41	0.47
138	11.94	161.58	11.60	35.20	23.74	335.73	52.08	10.80	8.65	20.19	11.95	0.19
140	53.32	412.44	29.62	89.85	60.60	656.96	132.93	27.58	22.08	51.55	30.49	0.48
974	18.08	244.69	17.57	53.30	35.95	508.40	78.86	16.36	13.10	30.58	18.09	0.29
220	5.42	73.33	5.27	15.97	10.77	152.36	23.63	4.90	3.93	9.16	5.42	0.09
222	29.84	403.95	29.01	88.00	59.35	839.32	130.20	27.01	21.63	50.49	29.86	0.47
224	106.67	1493.92	103.69	314.56	212.14	3000.16	465.39	96.54	77.30	180.47	106.75	1.69
226	27.38	378.73	27.20	82.51	55.64	786.93	122.07	25.32	20.28	47.34	28.00	0.44
228	97.35	1317.85	94.64	287.09	193.62	2738.21	424.75	88.11	70.55	154.71	97.43	1.54
230	32.80	253.69	18.22	55.27	37.27	527.11	81.77	16.96	13.58	31.71	18.76	0.30
232	28.26	382.59	27.47	83.35	56.21	794.95	123.31	25.58	20.48	47.82	28.29	0.45
234	99.65	770.85	55.36	167.93	113.25	1601.66	248.45	51.54	41.27	96.34	56.99	0.90
924	14.47	111.92	8.04	24.38	16.44	232.55	36.07	7.48	5.99	13.99	8.27	0.13
236	62.15	841.35	60.42	183.29	123.61	1748.14	271.17	56.25	45.04	105.15	62.20	0.99
238	43.95	593.57	42.63	129.31	87.21	1233.32	191.31	39.69	31.78	74.19	43.88	0.70
240	8.61	116.55	8.37	25.39	17.12	242.17	37.57	7.79	6.24	14.57	8.62	0.14
242	4.58	62.01	4.45	13.51	9.11	128.84	19.99	4.15	3.32	7.75	4.58	0.07
244	30.63	236.97	17.02	51.62	34.81	492.36	76.38	15.84	12.69	29.62	17.52	0.28
246	5.25	71.01	5.10	15.47	10.43	147.55	22.89	4.75	3.80	8.88	5.25	0.08
248	19.63	265.78	19.09	57.90	39.05	552.24	85.68	17.77	14.23	35.22	19.65	0.31
250	11.38	87.99	6.32	19.17	12.93	182.83	28.36	5.88	4.71	11.00	6.51	0.10
252	24.79	335.51	24.09	73.09	49.29	697.12	108.14	22.43	17.96	41.93	24.80	0.39
927	2.59	20.07	1.44	4.37	2.95	41.70	6.47	1.34	1.07	2.51	1.48	0.02
928	2.22	30.10	2.16	6.56	4.42	62.55	9.70	2.01	1.61	3.76	2.23	0.04
929	0.93	7.20	0.52	1.57	1.06	14.97	2.32	0.48	0.39	0.90	0.53	0.01
254	35.06	271.19	19.47	59.08	39.84	563.47	87.41	18.13	14.52	33.89	20.05	0.56
256	22.55	174.44	12.53	38.00	25.63	362.46	56.22	11.66	9.34	21.80	12.90	0.20
932	4.09	31.65	2.27	6.89	4.65	65.76	10.20	2.12	1.69	3.96	2.34	0.06
320	71.15	550.35	39.52	119.89	80.86	1143.51	177.38	36.80	29.46	68.78	40.69	1.13
322	21.15	163.64	11.75	35.65	24.04	340.00	52.74	10.94	8.76	20.45	12.10	0.19
324	74.08	572.99	41.15	124.82	72.32	2083.46	323.19	67.04	30.68	71.61	42.36	1.17
325	41.78	323.16	23.21	70.40	47.48	671.46	104.16	21.61	17.30	40.39	23.89	0.66
326	42.91	331.91	41.71	126.53	85.34	1206.86	187.21	38.83	17.77	41.48	24.54	0.68
328	39.48	305.41	38.38	116.43	78.52	1110.49	172.26	35.73	16.35	66.80	22.58	0.63
922	56.75	438.94	55.16	167.34	112.86	1596.04	247.58	51.36	23.50	96.01	56.79	0.90
923	21.72	188.01	12.07	36.60	24.68	610.91	94.76	11.23	8.99	21.00	12.42	0.34
330	12.27	166.15	11.93	36.19	24.41	345.22	53.55	11.11	8.89	20.77	12.28	0.19
332	26.38	357.06	25.64	77.78	52.46	741.89	115.08	23.87	19.12	44.63	26.40	0.42
334	17.63	238.64	17.14	51.99	35.06	495.84	76.91	15.96	12.78	29.83	17.64	0.28
336	67.92	919.43	66.03	200.30	135.08	1910.39	296.34	61.47	49.22	114.91	67.97	1.08
936	17.70	239.54	17.20	52.18	35.19	497.71	77.21	16.02	12.82	29.94	17.71	0.28
937	5.92	45.80	5.76	17.46	11.78	166.53	25.83	5.36	4.29	10.02	5.93	0.09
938	5.22	70.69	5.08	15.40	10.39	146.88	22.78	4.73	3.78	8.84	5.23	0.08
340	172.10	1331.23	95.60	290.01	342.27	4840.52	750.86	155.76	71.27	166.38	98.42	2.73
342	10.78	145.88	10.48	31.78	21.43	303.12	47.02	9.75	7.81	18.23	10.79	0.17
344	32.83	253.95	31.91	96.81	65.29	923.38	143.24	29.71	13.60	55.54	18.77	0.52
346	18.09	139.97	17.59	53.36	35.99	508.94	78.95	16.38	13.11	30.61	18.11	0.29
348	68.06	921.24	66.16	200.69	135.35	1914.13	296.92	61.59	49.32	115.14	68.11	1.08
350	37.52	507.90	36.47	110.64	74.62	1055.30	183.70	33.96	27.19	63.48	37.55	0.60
352	17.80	238.19	17.10	51.89	34.99	494.90	76.77	15.92	12.75	29.77	17.61	0.28
354	30.97	419.19	30.10	91.32	61.59	808.99	135.11	28.03	22.44	52.39	30.99	0.49
356	71.78	971.66	69.78	211.68	142.76	2018.91	313.17	64.96	52.02	121.44	71.84	1.14
358	271.85	3679.99	264.27	801.68	540.66	7646.22	1188.09	246.04	197.01	459.94	272.06	4.31
360	12.04	162.99	11.70	35.51	23.95	338.67	52.53	10.90	8.73	20.37	12.05	0.19
362	12.14	164.35	11.80	35.80	24.15	341.47	52.97	10.99	8.80	20.54	12.15	0.19
364	8.91	120.67	8.67	26.29	17.73	250.73	38.89	8.07	6.46	15.08	8.92	0.14

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 2

T _o LATA #	120	122	124	126	128	Traffic(Erlang)	130	132	133	134	From LATA #	136	138	140	974	220	222
366	15.67	14.07	7.37	11.30	71.64	12.78	45.19	173.42	10.72	18.86	23.10	9.05	23.10	24.16	14.76	4.48	24.67
368	35.68	31.65	16.56	25.42	161.10	28.74	101.62	389.99	24.11	42.42	51.95	20.35	51.95	54.34	33.18	10.07	55.48
370	22.14	19.64	10.28	15.77	99.97	17.84	63.06	242.01	14.96	22.78	32.24	15.72	32.24	33.72	20.59	6.25	34.43
374	19.30	24.46	12.80	19.64	124.49	22.21	78.53	301.36	18.63	32.78	40.14	15.72	40.14	41.99	25.64	7.78	42.87
376	9.08	8.06	6.02	9.24	41.01	7.32	36.95	141.82	8.77	15.43	18.89	7.40	18.89	19.76	12.07	3.66	20.17
376	19.67	17.45	9.13	14.02	88.83	15.85	56.03	215.03	13.29	23.39	28.65	11.22	28.65	29.96	18.30	5.55	30.59
377	8.44	10.70	5.60	8.59	54.44	9.71	34.34	131.80	8.15	14.34	17.56	6.88	17.56	18.37	11.21	3.40	18.75
378	11.78	10.45	5.47	8.39	53.17	9.49	33.54	128.71	7.96	14.00	17.15	6.72	17.15	17.94	10.95	3.32	18.31
420	32.93	29.21	15.29	23.46	148.68	26.53	93.79	359.93	22.25	39.15	49.95	18.78	49.95	50.16	30.63	9.29	51.20
422	132.07	117.16	61.31	94.09	596.33	106.40	376.16	1443.58	89.24	157.04	192.30	75.31	192.30	201.16	122.83	42.85	236.17
424	81.80	72.56	37.97	58.27	369.32	65.90	232.97	1028.16	55.27	97.26	119.10	53.64	119.10	143.27	78.07	26.54	146.26
426	54.79	48.60	25.44	39.03	247.38	44.14	155.05	688.69	42.58	65.15	79.78	35.93	79.78	95.97	50.96	17.78	97.97
428	25.46	22.58	11.82	18.13	114.94	20.51	72.50	278.23	17.20	30.27	37.06	14.52	37.06	38.77	23.67	8.26	45.52
428	45.35	41.12	23.73	36.42	230.83	41.18	145.60	642.60	34.54	60.79	74.44	29.15	74.44	77.86	47.54	16.59	91.42
430	71.92	63.80	33.39	51.24	324.75	57.94	200.47	769.35	47.56	72.77	102.49	40.14	102.49	107.21	65.46	19.86	109.45
432	44.14	39.16	20.49	31.45	199.31	35.56	125.72	482.48	29.83	52.48	64.27	25.17	64.27	67.23	41.05	14.32	68.64
434	56.06	49.73	26.02	39.94	253.11	45.16	159.66	612.73	37.88	66.55	81.62	31.97	81.62	85.38	52.14	15.81	87.17
436	35.89	31.84	16.66	25.57	162.06	28.91	102.22	392.30	24.25	42.68	52.26	20.47	52.26	54.67	33.38	10.13	55.81
438	173.40	219.74	115.00	176.47	1118.48	199.56	705.52	2707.59	157.38	294.54	360.68	141.26	360.68	377.29	230.38	69.88	385.18
440	31.69	40.16	21.02	32.25	204.40	36.47	128.93	494.81	30.59	53.83	65.92	25.82	65.92	68.95	42.10	12.77	70.39
442	32.58	28.90	15.12	23.21	147.09	26.24	92.78	356.08	22.01	38.73	47.43	18.58	47.43	49.62	30.30	9.19	50.66
444	30.60	27.15	14.21	31.14	138.18	35.22	124.52	477.86	29.54	51.98	63.66	24.93	63.66	66.59	40.66	12.33	67.98
446	24.09	15.98	14.51	24.51	155.37	27.72	98.01	376.12	23.25	40.91	50.10	19.62	50.10	52.41	32.00	9.71	53.51
448	22.51	19.97	10.45	16.03	101.63	18.13	64.11	246.02	15.21	26.76	32.77	12.84	32.77	48.97	20.93	9.07	50.00
450	12.78	11.34	5.93	9.11	57.72	10.30	36.41	199.62	8.64	15.20	18.61	10.41	18.61	20.82	16.99	5.15	28.40
452	48.13	42.69	22.34	48.98	217.30	55.39	195.81	751.47	46.46	81.75	100.10	39.21	104.71	104.71	63.94	19.40	106.90
454	30.46	27.02	14.14	21.70	137.51	24.53	123.91	475.54	29.40	36.21	46.35	24.81	46.35	66.27	40.46	12.27	67.65
456	14.91	13.22	6.92	10.62	67.31	12.01	60.65	232.76	14.39	17.72	31.01	12.14	32.43	44.46	19.80	6.01	33.11
458	54.35	48.21	25.23	38.72	245.38	43.78	154.78	848.58	36.72	64.62	79.13	27.62	79.13	118.25	50.54	21.90	120.72
460	182.53	161.92	84.74	130.04	824.17	147.05	519.87	1995.12	123.34	217.03	265.78	104.09	278.01	278.01	169.76	73.56	283.82
462	30.80	27.32	14.30	21.94	139.07	24.81	87.72	336.66	20.81	36.62	44.85	17.56	44.85	46.91	28.64	12.41	47.89
464	120.78	107.14	56.07	86.05	545.36	97.30	344.01	1320.19	81.61	143.61	175.87	68.88	183.96	183.96	112.33	48.68	268.30
466	41.46	36.78	19.25	29.54	187.21	33.40	118.09	453.19	28.02	49.30	60.37	23.64	60.37	72.62	38.56	11.70	64.47
468	47.81	42.41	22.19	34.06	215.86	38.51	136.16	522.56	32.30	56.84	69.61	27.26	69.61	72.82	44.46	13.49	74.34
470	68.51	60.77	31.81	48.81	309.34	55.19	195.13	1069.78	66.13	81.46	142.51	55.81	142.51	149.07	91.02	27.61	152.19
472	77.59	68.33	35.46	78.97	500.50	89.30	315.71	1211.59	74.90	131.80	161.40	63.21	168.83	168.83	103.09	31.27	172.36
474	26.75	23.90	17.74	27.23	172.56	30.79	108.85	417.74	25.82	45.44	55.65	21.79	55.65	58.21	35.54	10.78	59.43
476	67.91	60.24	31.52	48.38	306.60	54.70	193.40	742.22	45.88	80.74	98.87	38.72	103.42	103.42	63.15	19.16	105.59
478	41.11	36.47	19.08	29.29	185.62	33.12	117.09	449.34	27.78	48.88	59.86	23.44	59.86	72.01	38.23	13.34	73.51
480	80.56	71.46	37.40	81.98	363.72	64.90	327.76	1257.84	77.64	136.83	167.56	65.62	175.27	175.27	107.03	32.47	178.94
482	38.99	49.42	25.86	39.68	251.52	44.88	158.66	608.88	37.64	66.24	81.11	31.77	81.11	84.85	51.81	15.72	86.62
484	47.11	41.79	21.75	47.67	211.50	53.91	190.59	731.43	45.22	79.57	97.44	38.16	101.92	101.92	62.23	18.88	104.05
486	110.47	97.99	51.28	78.70	498.78	88.99	314.62	1207.73	74.64	131.35	160.85	62.99	171.76	171.76	102.74	31.16	171.77
488	15.70	13.92	7.29	11.18	70.87	12.65	44.71	171.57	10.61	18.66	22.85	8.95	23.91	23.91	14.60	4.43	24.41
490	56.62	50.22	26.28	40.33	255.63	45.61	161.25	618.82	38.26	67.32	82.45	32.28	82.45	86.29	52.65	15.97	88.03
492	45.02	39.93	20.90	32.07	203.26	36.27	128.21	492.04	30.42	51.52	65.55	25.67	65.55	68.56	41.87	12.70	70.00
494	36.53	32.40	16.96	26.02	164.92	29.43	104.03	399.24	24.68	43.43	53.18	20.83	53.18	55.63	33.97	10.30	56.80
496	32.38	28.72	15.03	23.07	146.20	26.09	92.22	353.92	21.88	38.50	47.15	18.46	49.32	49.32	30.11	9.13	50.35
500	165.05	146.42	109.47	167.98	745.27	132.97	671.58	2577.33	159.33	280.37	343.33	134.46	359.14	359.14	219.30	66.52	366.65
502	9.58	8.49	4.45	6.82	43.24	7.71	27.27	149.52	9.24	11.39	19.92	7.80	27.50	27.50	12.72	3.86	21.27
522	33.76	29.95	15.67	24.05	152.44	27.20	96.16	369.03	22.81	40.14	50.23	27.50	73.46	73.46	44.86	9.52	52.50
524	101.09	89.67	46.93	72.02	456.43	81.44	287.91	1104.92	66.31	120.20	210.27	82.35	219.95	219.95	134.31	28.52	157.19
526	18.21	16.16	8.46	12.98	82.24	14.67	51.88	199.08	12.31	21.66	26.52	10.39	26.52	27.93	16.94	5.14	28.32
528	76.56	67.91	35.54	54.54	345.67	61.67	218.04	836.79	51.73	91.03	111.47	43.66	166.58	166.58	101.71	21.60	119.04
530	17.57	15.59	8.16	12.52	73.34	14.16	50.05	192.07	11.87	20.89	25.59	10.02	38.23	38.23	23.35	4.96	27.32
532	55.36	49.13	25.71	39.45	250.06	44.62	157.73	605.33	37.42	65.85	80.64	31.58	80.64	84.35	51.51	15.62	86.11
534	35.59	31.57	16.52	25.35	160.69	28.67	101.36	388.99	24.05	42.31	51.82	20.29	51.82	54.34	31.58	10.04	55.34
536	99.26	88.05	46.08	70.71	448.19	79.97	282.71	1084.96	67.07	118.02	144.53	56.60	151.19	151.19	92.32	28.00	154.35
538	61.80	54.82	28.69	44.02	279.03	49.79	176.01	765.47	41.76	73.48	89.98	35.24	89.98	94.12	57.47	17.43	96.09
540	14.38	12.76	6.95	11.59	64.95	11.59	17.70	275.15	17.01	29.93	36.65	14.36	38.34	38.34	23.41	7.10	39.14
542	21.92	19.44	10.17	15.61	98.95	17.66	62.42	239.54	14.81	26.06	31.91	12.50	33.36	33.36	20.38	6.18	34.08
544	13.18	11.69	6.12	9.39	59.51	10.62	37.54	144.05	8.91	15.67	19.19	7.52	20.07	20.07	12.26	3.72	20.49

T. LATA #	224	226	228	230	232	234	236	238	240	242	244	246	248	250	252
366	90.48	18.94	70.52	13.02	19.53	45.92	58.89	32.91	6.10	3.50	12.20	3.59	13.94	4.52	18.29
368	203.47	42.59	158.59	29.29	43.92	89.81	132.44	74.02	13.72	7.86	27.43	8.07	31.35	10.16	41.14
370	126.27	25.43	98.41	18.18	27.26	64.09	82.19	45.93	8.51	4.88	19.57	5.01	19.45	6.31	25.53
374	157.23	32.91	122.55	22.63	33.94	69.40	102.34	57.19	10.60	6.08	21.19	6.24	24.22	7.85	31.79
376	73.99	15.49	57.67	10.65	15.97	32.66	48.16	26.92	4.99	2.86	9.97	2.93	11.40	3.70	14.96
378	112.19	23.49	87.44	16.15	24.22	56.95	82.24	40.81	7.56	4.34	17.39	4.45	17.28	5.60	22.68
377	68.76	14.39	53.60	9.90	14.84	30.35	44.76	25.01	4.64	2.66	9.27	2.73	10.59	3.43	13.90
378	67.15	14.06	52.34	9.67	14.50	34.09	43.71	24.43	4.53	2.60	10.41	2.66	10.35	3.86	13.58
420	187.79	45.21	146.37	31.09	40.54	95.32	140.57	78.56	14.56	8.35	44.30	8.57	33.27	10.79	43.66
422	753.17	181.32	675.09	124.68	162.58	382.30	553.35	315.07	58.40	33.47	177.66	34.35	133.44	65.84	175.11
424	356.43	112.29	418.10	77.22	115.79	236.77	349.17	195.13	36.17	20.73	110.03	32.38	125.76	40.78	108.45
426	359.32	75.22	280.06	51.72	77.56	158.59	233.88	130.71	24.23	13.89	73.70	21.69	84.24	27.31	110.55
428	145.17	34.95	130.12	24.03	31.34	73.68	108.66	60.73	11.26	6.45	22.50	6.62	25.72	8.34	33.75
429	335.27	70.18	261.32	48.26	72.37	147.98	218.23	121.96	22.60	12.96	68.77	13.30	78.60	25.48	103.15
431	401.40	84.03	312.86	57.78	86.65	177.17	261.27	146.01	27.06	15.51	82.33	24.23	94.10	30.51	123.49
430	410.16	98.74	319.69	67.90	98.54	208.19	307.03	171.58	31.80	18.23	63.58	18.71	72.67	23.56	95.36
432	251.73	60.60	225.63	41.67	54.34	127.77	188.43	105.31	19.52	11.19	39.02	11.48	44.60	14.46	58.53
434	319.69	76.96	249.17	52.92	69.01	162.27	239.30	133.73	24.79	14.21	49.55	14.58	56.64	18.36	74.33
436	204.68	42.85	159.53	29.46	44.18	90.34	153.21	85.62	15.87	9.10	31.73	9.34	36.26	11.76	47.59
438	1412.65	295.72	1101.05	203.35	304.93	623.51	919.51	513.87	95.24	54.60	218.97	64.43	250.28	81.15	285.60
440	258.16	54.04	201.22	37.16	55.73	113.95	168.04	93.91	17.41	9.98	40.02	11.78	45.74	14.83	60.02
442	185.78	38.89	144.60	26.74	40.10	94.30	139.07	67.58	14.40	8.26	28.80	8.47	32.91	10.67	43.19
444	249.32	52.19	194.32	35.89	53.82	110.04	162.28	90.69	16.81	9.64	38.65	9.89	38.41	14.32	50.41
446	196.24	41.08	152.95	28.25	42.36	86.61	127.73	71.38	13.23	7.58	30.42	7.78	34.77	11.27	39.67
448	128.36	38.39	142.92	26.40	39.58	80.93	119.36	66.70	12.36	7.09	24.72	7.27	28.25	9.16	37.07
450	104.15	21.80	81.18	14.99	22.48	45.97	67.79	37.89	7.02	4.03	14.04	4.13	16.05	5.20	21.06
452	392.07	82.07	305.59	56.44	84.63	173.05	255.20	142.62	26.43	15.15	60.77	15.55	60.40	19.58	79.27
454	248.11	51.94	193.36	35.71	53.56	109.51	161.50	90.25	16.73	9.59	33.44	9.84	38.22	12.39	50.16
456	121.44	25.42	94.65	17.48	26.21	53.60	79.05	44.18	8.19	4.69	16.37	4.82	18.71	6.07	24.55
458	442.74	92.68	345.08	63.73	95.57	195.41	288.18	161.05	29.85	17.11	59.68	17.56	68.21	22.12	89.51
460	1040.93	217.91	811.32	149.84	224.69	459.44	667.93	540.93	100.26	57.47	200.44	58.98	229.10	74.28	300.64
462	175.65	52.53	195.58	36.12	52.91	110.75	163.39	91.28	16.92	9.70	33.82	9.95	38.66	12.53	50.73
464	688.79	205.99	766.94	141.64	148.68	434.31	640.49	357.94	66.34	38.03	132.63	39.03	151.59	49.15	198.94
466	80.83	16.92	63.00	11.63	17.45	35.67	52.61	29.40	5.45	3.12	10.89	3.21	12.45	4.04	16.34
468	236.54	56.92	184.29	39.14	51.04	120.02	176.99	98.91	18.33	9.14	36.65	10.79	41.89	13.58	47.80
470	272.64	57.07	212.50	39.25	58.85	138.39	204.04	177.46	18.38	10.54	42.26	12.44	42.00	15.66	55.12
472	562.57	135.43	438.48	93.13	121.44	285.55	421.11	235.34	43.62	25.00	87.20	25.66	99.67	32.32	130.80
474	558.15	116.84	435.03	80.34	120.48	246.35	363.30	203.03	37.63	21.57	75.23	22.14	85.99	27.88	112.84
476	632.14	132.33	492.70	90.99	136.45	320.86	411.46	229.95	42.62	24.43	97.99	25.07	97.39	36.31	127.80
478	217.95	45.62	169.87	31.37	47.05	110.63	141.87	79.28	14.69	8.42	33.78	9.94	38.61	12.52	44.06
480	387.24	93.22	301.82	64.10	83.59	196.56	289.87	162.00	30.02	17.21	60.03	17.66	68.61	22.24	90.03
482	656.26	137.38	511.50	94.47	141.66	289.66	427.17	238.73	44.25	25.36	101.73	26.03	101.10	32.78	132.68
484	247.60	54.93	209.44	45.73	68.57	140.21	206.78	115.56	21.42	12.28	49.24	12.60	48.94	18.25	64.23
486	381.61	79.89	297.44	54.93	82.57	168.43	248.40	138.82	25.73	14.75	59.15	15.14	58.79	21.92	77.15
488	268.68	56.24	209.41	38.68	58.00	118.59	171.71	97.74	18.11	9.03	31.49	9.27	35.99	11.67	47.23
490	629.96	188.39	701.44	129.54	135.98	397.21	585.79	327.37	60.67	34.78	121.30	35.69	138.65	44.95	181.95
492	89.51	26.77	69.77	18.41	19.32	56.44	83.24	46.52	8.62	4.94	17.24	5.07	19.70	6.39	25.85
494	322.86	67.59	251.65	46.48	67.69	120.58	176.99	98.91	18.33	9.14	36.65	10.79	41.89	13.58	47.80
496	556.26	137.38	511.50	94.47	141.66	289.66	427.17	238.73	44.25	25.36	101.73	26.03	101.10	32.78	132.68
498	247.60	54.93	209.44	45.73	68.57	140.21	206.78	115.56	21.42	12.28	49.24	12.60	48.94	18.25	64.23
500	381.61	79.89	297.44	54.93	82.57	168.43	248.40	138.82	25.73	14.75	59.15	15.14	58.79	21.92	77.15
502	268.68	56.24	209.41	38.68	58.00	118.59	171.71	97.74	18.11	9.03	31.49	9.27	35.99	11.67	47.23
504	629.96	188.39	701.44	129.54	135.98	397.21	585.79	327.37	60.67	34.78	121.30	35.69	138.65	44.95	181.95
506	89.51	26.77	69.77	18.41	19.32	56.44	83.24	46.52	8.62	4.94	17.24	5.07	19.70	6.39	25.85
508	322.86	67.59	251.65	46.48	67.69	120.58	176.99	98.91	18.33	9.14	36.65	10.79	41.89	13.58	47.80
510	556.26	137.38	511.50	94.47	141.66	289.66	427.17	238.73	44.25	25.36	101.73	26.03	101.10	32.78	132.68
512	247.60	54.93	209.44	45.73	68.57	140.21	206.78	115.56	21.42	12.28	49.24	12.60	48.94	18.25	64.23
514	381.61	79.89	297.44	54.93	82.57	168.43	248.40	138.82	25.73	14.75	59.15	15.14	58.79	21.92	77.15
516	268.68	56.24	209.41	38.68	58.00	118.59	171.71	97.74	18.11	9.03	31.49	9.27	35.99	11.67	47.23
518	629.96	188.39	701.44	129.54	135.98	397.21	585.79	327.37	60.67	34.78	121.30	35.69	138.65	44.95	181.95
520	89.51	26.77	69.77	18.41	19.32	56.44	83.24	46.52	8.62	4.94	17.24	5.07	19.70	6.39	25.85
522	322.86	67.59	251.65	46.48	67.69	120.58	176.99	98.91	18.33	9.14	36.65	10.79	41.89	13.58	47.80
524	556.26	137.38	511.50	94.47	141.66	289.66	427.17	238.73	44.25	25.36	101.73	26.03	101.10	32.78	132.68
526	247.60	54.93	209.44	45.73	68.57	140.21	206.78	115.56	21.42	12.28	49.24	12.60	48.94	18.25	64.23
528	381.61	79.89	297.44	54.93	82.57	168.43	248.40	138.82	25.73	14.75	59.15	15.14	58.79	21.92	77.15
530	268.68	56.24	209.41	38.68	58.00	118.59	171.71	97.74	18.11	9.03	31.49	9.27	35.99	11.67	47.23
532	629.96	188.39	701.44	129.54	135.98	397.21	585.79	327.37	60.67	34.78	121.30	35.69	138.65	44.95	181.95
534	89.51	26.77	69.77	18.41	19.32	56.44	83.24	46.52	8.62	4.94	17.24	5.07	19.70	6.39	25.85
536	322.86	67.59	251.65	46.48	67.69	120.58	176.99	98.91	18.33	9.14	36.65	10.79	41.89	13.58	47.80
538	556.26	137.38	511.50	94.47	141.66	289.66	427.17	238.73	44.25	25.36	101.73	26.03	101.10	32.78	132.68
540	247.60	54.93	209.44	45.73	68.57	140.21	206.78	115.56	21.42	12.28	49.24	12.60	48.94	18.25	64.23
542	381.61	79.89	297.44	54.93	82.57	168.43	248.40	138.82	25.73	14.75	59.15	15.14	58.79	21.92	77.15
544	268.68	56.24	209.41												

To LATA #	927	928	929	254	256	932	930	324	325	326	328	922	923	330	332
366	1.02	1.53	0.36	12.19	7.81	1.49	30.32	30.39	17.67	17.44	14.55	23.00	8.89	6.83	332
368	2.29	3.45	0.82	27.42	17.57	3.35	68.18	68.33	39.74	39.21	32.73	51.73	19.99	15.36	330
370	1.42	2.14	0.51	17.02	10.90	2.08	42.31	42.41	24.66	24.33	20.31	32.10	12.41	9.53	332
374	1.77	2.66	0.63	21.19	13.57	2.59	52.68	52.80	30.71	30.30	25.29	39.97	15.45	11.87	330
376	0.83	1.25	0.30	8.67	5.55	1.22	24.79	24.80	14.45	14.26	11.90	18.81	7.27	5.58	332
976	1.26	1.90	0.45	15.12	9.69	1.85	37.59	37.68	21.91	21.62	18.05	28.52	11.02	8.47	332
977	0.77	1.17	0.28	9.27	5.16	1.13	23.04	23.09	13.43	13.25	11.06	17.48	6.76	5.19	332
978	0.87	1.14	0.27	9.05	5.80	1.11	22.50	22.55	13.11	12.94	10.80	17.07	6.60	5.07	332
420	2.43	3.66	0.87	38.51	16.21	3.09	62.92	63.07	36.67	36.19	30.21	47.74	18.45	14.17	330
422	9.74	14.68	3.48	101.51	65.02	12.41	252.36	252.95	147.09	145.15	121.15	191.49	74.01	56.85	330
424	9.18	13.83	2.15	95.66	40.27	7.69	156.30	156.66	91.09	89.89	75.03	118.59	45.83	35.21	330
426	6.15	9.27	1.44	42.11	26.97	5.15	104.69	104.93	61.02	60.21	50.26	79.44	30.70	23.58	330
428	1.88	2.83	0.67	19.56	12.53	2.39	48.64	48.75	28.35	27.98	20.31	36.91	14.26	10.96	330
949	3.77	5.68	1.35	39.29	25.17	4.80	97.68	97.91	56.93	56.18	46.90	74.12	28.65	22.01	330
951	6.87	10.35	1.61	47.04	30.13	5.75	116.95	117.22	68.16	67.26	56.15	88.74	34.30	27.31	330
430	5.31	7.99	1.89	55.28	35.41	5.88	119.51	120.04	69.65	68.04	56.98	104.28	40.30	30.96	330
432	3.26	4.91	1.16	33.93	21.73	4.15	84.35	84.54	49.16	48.51	40.49	64.00	24.73	19.00	330
434	4.14	6.23	1.48	43.08	27.60	4.58	93.14	93.36	54.29	53.44	44.42	81.28	31.41	24.13	330
436	2.65	3.99	0.94	27.58	17.67	2.93	59.64	60.04	34.76	33.94	28.63	52.04	20.11	15.45	330
438	18.28	27.53	6.52	190.38	121.95	20.24	411.59	412.54	239.89	236.73	227.23	359.15	120.70	70.07	330
440	3.34	5.03	1.19	34.79	22.29	3.70	75.22	75.39	43.84	43.26	36.11	65.63	22.06	12.81	330
442	2.40	3.62	0.86	25.04	16.04	2.66	54.13	54.33	31.55	30.80	26.88	47.23	15.87	14.02	330
444	2.81	4.22	1.00	33.60	18.72	3.57	72.64	72.81	42.34	41.78	34.87	55.12	21.30	12.37	330
446	2.54	3.82	0.79	26.45	16.94	2.81	57.18	57.31	33.32	32.88	31.57	49.89	16.77	9.73	330
448	2.06	3.11	0.74	21.49	13.76	2.63	53.43	53.55	31.14	30.73	25.65	40.54	15.67	9.10	330
450	1.17	1.76	0.42	12.21	7.82	1.49	30.35	30.42	17.69	17.45	14.57	23.03	8.90	5.17	330
452	4.41	6.64	1.57	45.95	29.43	5.62	114.23	114.50	66.58	65.70	54.84	86.68	33.50	19.45	330
454	2.79	4.20	1.00	29.08	18.63	3.56	72.29	72.46	42.13	41.58	34.70	54.85	21.20	12.31	330
456	1.37	2.06	0.49	14.23	9.12	1.74	35.38	35.46	20.62	20.35	16.99	26.85	10.38	6.02	330
458	4.98	7.50	1.78	51.89	33.24	6.34	129.09	129.29	75.18	74.19	61.93	97.88	37.83	21.96	330
460	16.73	25.20	5.97	174.27	111.63	21.31	433.27	434.27	252.52	249.19	208.00	328.75	127.06	64.14	330
939	2.82	4.25	1.01	29.41	18.84	3.60	73.11	73.28	42.61	42.05	35.10	55.47	21.44	10.82	330
952	11.07	16.67	3.95	115.32	73.87	14.10	266.70	267.36	167.10	164.89	137.64	217.54	84.07	42.44	330
953	0.91	1.37	0.32	9.47	6.07	1.16	23.55	23.60	13.73	13.54	11.31	17.87	6.91	4.01	330
462	3.06	4.61	1.09	31.87	20.41	3.90	79.23	79.41	46.18	45.57	37.88	60.11	23.23	17.85	330
464	3.53	5.31	1.26	36.74	23.54	4.49	91.35	91.56	53.24	52.54	43.86	69.32	26.79	20.58	330
466	7.28	10.96	2.60	115.38	48.57	9.27	188.50	188.93	109.86	108.41	137.71	143.03	55.28	42.46	330
468	6.28	9.46	2.24	65.41	41.90	8.00	162.62	163.00	94.78	93.53	89.78	141.90	47.69	27.69	330
470	2.92	4.36	1.01	29.37	18.82	3.12	63.50	63.62	37.01	36.06	35.06	55.41	18.62	16.45	330
472	2.82	4.25	1.01	29.37	18.82	3.12	63.50	63.62	37.01	36.06	35.06	55.41	18.62	16.45	330
474	5.01	7.55	1.79	52.19	33.43	6.38	129.75	130.05	75.52	74.63	62.29	98.45	38.05	29.23	330
956	3.03	4.57	1.08	48.08	20.24	3.86	78.55	78.73	45.78	45.18	37.71	59.60	23.04	17.70	330
476	7.38	11.12	2.63	86.45	49.26	9.40	191.21	191.65	111.44	109.97	105.56	166.85	56.07	32.55	330
477	4.11	5.38	1.27	42.81	27.42	4.55	92.56	92.77	53.95	53.23	45.10	80.77	27.14	15.76	330
478	4.29	6.47	1.53	51.43	28.65	5.47	111.19	111.44	64.80	63.95	51.39	97.02	32.61	18.93	330
480	2.63	3.96	0.94	27.38	17.54	3.35	68.07	68.23	39.67	39.15	32.68	51.65	19.96	10.08	330
482	10.13	15.25	3.61	105.47	67.56	12.90	262.21	262.82	152.83	150.81	125.88	198.96	76.89	44.64	330
484	1.44	2.17	0.51	14.99	9.60	1.83	37.26	37.34	21.72	21.43	17.89	28.27	10.93	5.52	330
486	5.19	7.82	1.85	54.05	34.62	6.61	134.39	134.79	78.32	77.29	64.52	101.97	39.41	19.89	330
488	4.13	6.21	1.47	42.98	27.53	5.26	106.85	107.10	62.28	61.46	51.30	81.08	31.33	15.82	330
490	3.35	5.04	1.19	34.87	22.34	4.26	86.70	86.90	50.53	49.87	41.62	65.79	25.42	12.83	330
492	2.97	4.47	1.06	30.91	19.80	3.78	76.86	77.04	44.80	44.21	36.90	58.32	22.54	11.38	330
520	15.13	22.79	5.40	181.23	100.94	22.16	450.56	451.60	262.60	259.14	216.30	341.87	132.13	101.50	330
521	0.88	1.32	0.31	9.14	5.86	1.12	22.73	22.73	13.25	13.03	12.55	19.83	7.67	5.89	330
522	3.09	4.66	1.10	32.23	20.65	3.94	80.14	80.32	46.71	46.09	38.47	69.93	23.50	13.64	330
524	9.27	13.96	3.30	96.51	61.82	11.80	239.95	240.11	139.85	138.71	115.19	209.38	80.92	62.16	330
526	1.67	2.51	0.60	17.39	11.14	2.13	43.23	43.33	25.20	24.87	20.76	32.80	12.68	7.36	330
528	7.02	10.57	2.50	73.09	46.82	8.94	181.72	182.14	105.91	104.52	87.24	137.88	53.29	30.94	330
530	1.61	2.43	0.57	16.78	10.75	2.05	41.71	41.81	24.31	23.99	20.02	31.65	12.23	7.10	330
532	3.55	5.35	1.27	52.87	33.87	6.47	131.46	131.76	76.62	75.61	63.11	114.71	36.55	22.38	330
534	3.26	4.91	1.16	33.98	21.76	4.15	84.47	84.73	49.23	48.57	40.55	73.71	24.77	12.88	330
536	6.37	9.59	2.27	94.77	60.70	11.59	235.62	236.16	137.32	135.51	113.11	178.78	69.09	40.11	330
538	5.66	8.53	2.02	59.00	37.79	7.21	146.69	147.03	85.50	84.37	70.42	111.30	43.02	24.97	330
540	1.62	2.43	0.58	16.82	10.78	2.06	41.83	41.92	24.36	24.06	20.08	45.34	12.27	8.85	330
542	1.41	2.12	0.50	14.65	9.38	2.56	36.41	36.41	21.22	20.94	17.48	39.47	10.68	7.70	330
544	0.65	1.27	0.30	8.81	5.64	1.54	21.90	21.90	18.23	17.99	10.51	23.74	9.17	4.63	330

To LATA #	334	336	338	937	938	340	342	344	346	348	350	352	354	356	358	360
From LATA #	334	336	338	937	938	340	342	344	346	348	350	352	354	356	358	360
366	9.77	38.18	9.83	2.25	2.86	78.27	5.17	15.01	7.90	30.05	16.30	7.94	19.89	46.54	191.34	8.20
368	21.97	85.86	22.11	5.06	6.43	176.02	11.62	33.75	17.07	67.58	36.66	17.85	44.74	104.67	450.29	18.45
370	13.63	53.28	13.72	3.14	3.99	109.23	7.21	20.94	11.03	41.94	22.75	11.08	27.76	64.95	267.02	11.45
374	11.16	66.34	17.09	3.91	4.97	136.02	8.98	26.08	13.73	52.22	28.33	13.80	22.72	53.15	332.50	14.26
376	5.25	31.22	6.04	1.84	2.34	64.01	3.68	12.27	6.46	24.58	13.33	6.49	10.69	25.01	102.82	4.41
378	7.96	47.34	12.19	2.79	3.55	97.05	6.41	18.61	9.80	37.26	20.22	9.84	16.21	37.93	237.26	10.17
379	7.42	29.01	7.47	1.71	2.17	59.49	3.93	11.40	6.00	22.84	12.39	6.03	15.12	35.37	145.42	6.24
378	4.76	28.34	7.30	1.67	2.12	58.09	3.34	11.14	5.86	22.30	12.10	5.89	9.70	22.70	93.32	6.09
420	13.32	52.07	20.41	4.67	5.94	162.45	9.33	31.15	16.40	62.37	33.84	16.48	27.13	63.48	260.97	11.19
422	53.44	317.80	81.84	18.74	23.81	651.55	37.42	124.92	65.77	250.16	135.71	66.09	108.83	254.61	1046.67	44.88
424	50.36	196.82	50.69	11.60	14.74	403.53	26.65	77.36	40.73	154.93	84.05	40.93	102.57	239.96	986.44	42.30
426	33.74	131.84	33.95	7.77	9.88	270.29	17.85	51.82	27.29	103.78	56.30	27.42	68.70	160.73	660.75	28.33
428	10.30	61.25	15.77	3.61	4.59	125.58	7.21	24.08	12.68	48.22	26.16	12.74	20.98	49.07	201.73	8.65
949	20.69	123.01	31.68	7.25	9.21	252.20	16.66	48.35	25.46	96.83	52.53	25.58	42.13	98.55	616.53	26.44
951	37.69	147.28	37.93	8.68	11.03	391.95	19.94	57.89	30.48	115.93	62.89	30.63	76.75	179.56	738.13	31.65
430	29.10	113.73	29.29	10.20	12.96	354.82	20.38	68.03	35.82	136.23	73.91	35.99	59.27	138.66	570.00	24.44
432	17.86	68.80	27.35	6.26	7.96	217.76	12.51	41.75	21.98	83.61	45.36	22.09	36.37	85.10	349.82	19.05
434	22.68	88.64	22.89	7.95	10.10	276.55	15.88	53.02	27.92	106.18	57.60	28.05	46.19	108.07	444.26	19.05
436	14.52	56.75	14.62	5.09	4.25	153.97	10.17	29.52	17.87	67.98	36.88	17.96	29.58	69.19	284.44	12.20
438	100.23	391.70	100.87	35.15	29.34	1062.66	70.18	203.73	107.27	408.00	221.34	107.78	204.12	477.55	1963.14	84.18
440	18.32	71.58	18.45	6.42	5.36	194.20	12.82	37.23	19.60	74.56	40.45	19.70	37.30	87.27	358.76	11.07
442	13.18	51.51	13.27	4.62	3.86	139.75	9.23	26.79	16.22	61.71	33.47	14.17	26.84	62.80	258.18	11.07
444	15.38	69.13	17.80	5.39	5.18	187.55	12.39	35.96	18.93	72.01	39.06	19.02	31.33	73.29	301.28	12.92
446	13.92	54.41	14.01	4.88	4.08	147.62	9.75	28.30	14.90	56.68	30.75	14.97	28.36	66.34	272.71	11.69
448	11.31	44.21	11.39	3.97	3.31	137.94	9.11	26.45	13.92	52.96	28.73	13.99	23.04	53.90	221.59	9.50
450	6.43	25.11	6.47	2.25	1.88	78.35	5.17	15.02	7.91	30.08	16.32	7.95	13.09	30.62	125.86	5.40
452	24.19	103.71	28.00	8.48	8.14	294.93	19.48	56.54	29.77	113.24	61.43	29.91	49.26	115.25	473.78	20.32
454	15.31	59.82	17.72	5.37	2.52	91.35	12.33	35.78	18.84	71.56	38.87	18.93	31.17	72.93	299.82	12.86
456	7.49	29.28	8.67	2.63	2.22	118.62	5.17	21.46	11.92	42.94	23.99	11.34	18.64	43.13	179.98	22.94
458	27.32	106.75	27.49	9.58	9.86	333.04	21.99	63.85	33.62	127.87	69.37	33.78	55.63	130.15	535.01	22.94
460	91.75	358.55	92.34	32.17	26.86	1188.62	51.71	214.46	112.92	429.49	232.99	113.46	186.84	437.13	1796.98	77.05
939	15.48	60.50	15.58	5.43	4.53	188.76	8.73	36.19	19.05	72.47	39.32	19.15	31.53	73.76	303.22	13.00
952	60.71	237.25	61.10	21.29	17.77	740.20	34.22	99.34	52.30	198.94	107.92	52.55	86.55	202.48	1189.08	35.69
953	4.99	19.49	5.77	1.75	1.68	60.80	4.02	11.66	6.14	23.34	12.66	6.17	10.16	23.76	97.67	4.19
462	16.78	99.77	25.69	5.88	7.47	204.55	13.51	39.22	20.65	78.53	42.60	20.75	34.17	79.93	500.02	21.44
464	19.34	75.60	29.63	6.78	6.62	235.85	13.54	45.22	23.81	90.55	49.13	23.92	39.40	92.17	378.88	16.25
466	39.92	237.37	61.13	14.00	17.78	486.67	32.14	93.30	49.13	186.85	101.37	49.36	81.29	190.18	1189.68	51.01
468	39.60	154.76	39.86	13.89	11.59	419.86	27.73	80.50	42.38	161.20	87.45	42.59	70.13	164.07	775.64	33.26
470	44.85	175.28	45.14	15.73	13.13	475.52	31.40	91.17	55.20	209.96	113.90	55.47	91.34	213.69	878.47	37.67
472	15.46	60.43	15.56	5.42	4.53	163.95	10.83	31.43	19.03	72.39	39.27	16.63	31.49	73.68	302.88	12.99
474	27.48	107.37	42.08	9.63	12.24	335.00	19.24	64.23	33.82	128.62	69.78	33.98	55.95	130.91	538.15	23.08
956	16.63	98.92	25.47	5.83	7.41	202.81	13.39	38.88	20.47	77.87	42.24	20.57	33.88	79.25	495.77	21.26
476	40.49	181.97	46.86	16.33	13.63	493.67	32.60	94.65	49.83	189.54	102.83	50.07	82.46	192.91	912.00	39.11
477	22.54	88.09	22.68	7.90	6.60	238.97	15.78	45.82	24.12	91.75	49.77	24.24	45.90	107.39	441.47	18.93
478	27.08	105.81	27.25	9.49	7.93	287.07	18.96	55.04	28.98	110.22	59.79	29.12	47.95	112.18	530.32	22.74
480	14.41	56.33	14.51	5.05	4.22	202.11	13.35	38.75	20.40	77.60	42.10	17.83	29.36	68.68	282.33	12.11
482	55.52	218.99	55.88	19.47	16.25	676.98	44.71	129.79	68.34	259.92	141.01	68.66	113.08	264.55	1087.52	46.63
484	7.89	30.83	7.94	2.77	2.31	96.19	4.45	18.44	9.71	36.93	20.04	9.76	16.07	37.59	154.53	6.63
486	28.46	111.21	28.64	9.98	8.33	346.96	16.04	66.52	35.02	133.21	72.27	35.19	57.95	135.58	557.36	23.90
488	22.63	88.42	22.77	7.93	6.62	275.87	12.75	37.02	27.85	105.92	57.46	27.98	46.08	107.80	443.17	19.00
490	18.36	71.75	18.48	6.44	5.37	223.84	10.35	42.92	22.60	85.94	46.62	22.70	37.39	87.47	359.59	15.42
492	16.28	63.60	16.38	5.71	4.76	198.44	9.17	38.04	20.03	76.19	41.33	20.13	33.14	77.54	318.77	13.67
520	95.41	372.86	96.02	33.45	42.50	1163.27	66.80	223.02	117.43	446.63	242.29	117.99	194.30	454.58	1868.70	80.13
521	5.54	21.63	5.57	1.94	2.47	67.49	3.88	11.25	6.81	25.91	14.06	6.84	11.27	26.37	108.41	4.65
522	19.52	76.27	19.64	6.84	5.71	206.91	13.66	39.67	20.89	79.44	43.10	20.99	39.74	92.98	382.23	16.39
524	58.43	228.35	58.81	20.49	17.11	619.51	40.91	118.77	71.92	273.53	148.39	72.26	119.00	278.40	1144.47	49.07
526	9.15	41.14	10.60	3.21	3.08	111.62	7.37	21.40	11.27	42.86	23.25	11.32	18.64	43.62	179.31	7.69
528	38.48	172.94	44.54	13.49	12.95	469.17	30.98	89.95	47.36	180.13	97.72	47.59	78.37	183.34	753.68	32.32
530	8.83	34.52	10.22	3.10	2.97	107.69	7.11	20.65	10.87	41.35	22.43	10.92	17.99	42.08	172.99	7.42
532	32.01	125.10	32.22	11.22	9.37	339.40	22.41	65.07	34.26	130.31	72.69	34.42	56.69	132.63	627.00	26.89
534	20.57	80.39	20.70	7.21	6.02	218.10	14.40	41.81	25.32	96.30	52.24	22.12	41.89	98.01	402.91	17.28
536	49.89	194.98	50.21	17.49	16.80	608.31	40.17	116.63	61.41	233.56	126.70	61.61	101.61	237.71	977.21	41.90
538	31.06	139.60	35.95	10.89	10.46	378.72	25.01	72.61	38.23	145.41	78.88	38.41	63.26	147.99	608.39	26.09
540	8.86	49.45	12.73	4.44	3.70	107.99	7.13	20.70	10.90	41.46	22.49	10.95	18.04	42.20	173.48	7.44
542	11.02	43.05	11.09	3.86	3.22	94.01	6.21	18.02	9.49	36.10	19.58	9.54	22.43	52.48	215.75	9.25
544	6.62	25.89	6.67	2.32	1.94	80.77	3.73	10.84	8.15	31.01	16.82	8.19	13.49	31.56	129.74	5.56

To LATA #	362	364	366	368	370	374	376	From LATA #	376	377	378	420	422	424	426	428	949
366	5.34	6.02	0.00	11.68	7.21	9.06	4.41	6.40	3.96	3.88	3.88	6.46	23.08	14.18	9.70	4.68	9.08
368	12.02	13.54	11.05	0.00	16.22	20.37	9.92	14.40	8.91	8.72	8.72	12.64	51.90	31.89	21.80	10.51	20.43
370	7.46	8.40	6.86	16.30	0.00	12.64	6.16	8.94	5.53	5.41	5.41	9.02	32.21	19.79	13.53	6.52	12.68
374	14.13	10.47	8.54	20.30	12.54	0.00	7.67	11.13	6.89	6.74	6.74	11.23	40.10	24.64	16.85	8.12	15.79
376	6.65	4.92	4.02	9.55	5.90	7.41	0.00	5.24	3.24	3.17	3.17	4.60	18.87	11.60	7.93	3.82	7.43
976	10.08	7.47	6.09	14.48	8.95	11.23	5.47	0.00	4.91	4.81	4.81	8.01	28.62	17.58	12.02	5.80	11.26
977	4.06	4.58	3.73	8.88	5.48	6.88	3.35	4.87	0.00	2.95	2.95	4.27	17.54	10.78	7.37	3.55	6.90
978	6.04	4.47	3.65	8.67	5.35	6.72	3.27	4.75	0.00	2.94	2.94	4.80	12.10	10.78	7.20	3.47	6.74
420	16.88	8.21	10.20	13.85	9.84	12.36	5.23	8.73	4.70	5.29	5.29	0.00	83.83	51.50	23.14	11.16	21.68
422	67.70	50.13	40.91	55.56	34.32	43.09	20.99	30.46	18.85	21.22	21.22	81.86	208.22	206.56	141.24	66.11	132.33
424	27.55	31.05	25.33	34.41	21.25	26.69	13.00	18.87	11.67	13.14	13.14	50.70	139.47	85.69	0.00	87.47	42.18
426	18.46	16.97	16.97	23.05	14.24	17.88	8.71	12.64	7.82	7.66	7.66	22.31	139.47	85.69	0.00	28.25	54.90
428	13.05	9.66	7.88	10.71	6.61	8.31	4.05	5.87	3.63	3.56	3.56	10.37	64.80	39.81	27.22	0.00	25.51
949	26.21	19.41	15.83	21.51	13.28	16.68	8.12	11.79	7.30	7.14	7.14	20.82	130.14	79.96	54.67	26.36	0.00
951	20.62	17.23	18.96	25.75	15.90	19.97	9.73	14.12	8.73	8.55	8.55	24.93	155.80	95.73	65.45	31.56	61.33
430	36.87	17.94	22.28	30.26	21.49	23.47	11.43	19.08	10.26	11.56	11.56	44.58	183.09	112.49	50.54	24.37	72.06
432	22.63	16.76	13.67	18.57	11.47	14.40	7.01	10.18	6.30	6.17	6.17	27.36	112.37	69.04	47.20	22.76	44.23
434	28.74	13.98	17.36	23.58	14.57	18.29	8.91	12.93	8.00	7.83	7.83	34.74	142.70	87.68	59.95	28.91	56.17
436	18.40	8.95	7.31	15.10	9.33	11.71	5.70	8.28	5.12	5.01	5.01	14.62	91.36	36.89	25.22	18.51	35.96
438	126.98	61.79	50.42	104.21	74.02	80.82	39.37	65.70	35.35	39.80	39.80	153.53	414.38	254.59	174.08	83.95	163.10
440	23.21	11.29	9.21	19.05	11.76	14.77	7.19	10.44	6.46	6.33	6.33	18.44	75.73	46.53	31.81	15.34	29.81
442	16.70	8.13	6.63	13.71	8.46	10.63	5.18	7.51	4.65	5.18	5.18	20.19	82.93	33.48	22.89	11.04	21.45
444	14.73	10.31	8.90	18.39	11.36	14.26	6.95	10.08	6.24	6.11	6.11	17.81	73.13	44.93	30.72	14.82	28.79
446	17.64	8.58	7.00	14.48	8.94	11.23	5.47	7.94	4.91	5.53	5.53	21.33	57.56	35.37	24.18	11.66	22.66
448	10.83	6.97	5.69	13.53	8.35	10.49	5.11	7.42	4.59	4.49	4.49	13.10	53.79	28.74	19.65	9.48	18.41
450	6.15	3.96	3.23	7.68	4.75	5.96	2.90	4.21	2.61	2.55	2.55	7.44	30.55	16.32	11.16	5.38	10.46
452	23.16	17.15	13.99	28.92	17.86	22.43	10.93	15.86	9.81	9.61	9.61	28.00	115.01	70.66	48.31	23.30	45.27
454	14.66	9.44	8.86	18.30	11.30	14.20	6.91	10.03	6.21	6.08	6.08	17.72	72.78	44.72	30.57	14.74	28.65
456	7.17	4.62	4.33	8.96	5.53	6.95	3.38	4.91	3.04	2.98	2.98	6.67	35.62	21.89	14.96	7.22	14.02
458	26.15	16.84	13.74	32.66	20.17	25.33	12.34	17.91	11.08	10.85	10.85	31.62	129.87	69.38	47.44	26.31	51.12
460	87.84	56.56	46.15	76.79	47.43	59.56	29.01	42.10	26.05	36.43	36.43	92.35	379.30	233.04	159.34	76.84	149.30
939	14.82	9.54	7.79	12.96	11.33	10.05	4.89	10.15	4.40	6.15	6.15	15.58	64.00	39.32	26.89	12.97	25.19
952	50.54	26.20	30.54	72.59	44.83	56.30	27.42	39.80	24.62	24.11	24.11	61.11	250.99	154.21	105.44	58.47	98.79
953	4.77	3.07	2.88	5.96	3.68	4.62	2.25	3.27	2.02	1.98	1.98	5.77	23.71	14.57	9.96	4.80	9.33
462	21.25	15.74	12.84	20.06	18.85	15.56	7.58	16.74	6.80	10.14	10.14	16.89	69.36	42.61	29.14	12.22	27.30
464	24.51	18.15	14.81	23.13	21.74	27.30	6.74	19.30	7.85	11.69	11.69	19.47	79.97	49.14	33.60	14.09	31.48
466	33.23	37.45	30.55	47.73	29.48	37.01	18.03	26.17	16.19	15.85	15.85	61.14	165.02	101.39	69.32	33.43	64.93
468	50.17	24.41	19.92	47.35	29.12	36.72	17.89	25.96	15.73	15.73	15.73	39.86	142.37	87.47	59.81	28.84	56.04
470	56.82	27.65	22.56	53.63	33.24	41.59	20.26	29.40	18.19	27.10	27.10	45.15	185.43	113.93	77.90	32.66	72.99
472	19.59	9.53	7.78	18.49	11.42	14.34	6.98	10.14	6.27	6.14	6.14	23.69	63.93	39.28	26.86	12.95	25.16
474	34.81	16.94	21.03	32.85	20.29	25.48	12.41	18.01	11.14	10.91	10.91	42.09	172.86	69.79	47.72	23.01	44.71
956	21.07	15.60	12.73	19.89	12.28	15.42	6.53	10.90	5.87	6.61	6.61	25.48	104.65	64.30	28.89	13.93	27.07
476	58.99	28.71	23.42	48.41	34.39	43.16	18.29	30.52	16.42	18.49	18.49	46.87	192.50	118.27	80.87	39.00	75.77
477	28.55	13.90	11.34	26.95	16.65	20.90	10.18	14.78	9.14	8.95	8.95	22.69	93.18	57.25	39.15	18.88	36.68
480	12.00	8.89	7.25	17.24	10.64	13.37	6.51	9.45	5.85	5.72	5.72	16.69	59.59	36.61	25.03	12.07	23.46
482	53.16	34.23	27.93	66.39	41.00	51.49	25.08	36.40	22.52	25.36	25.36	64.27	229.55	141.04	96.43	46.50	90.35
484	7.55	4.86	3.97	9.43	5.83	7.32	3.56	5.17	3.20	3.13	3.13	7.94	32.62	20.04	13.70	6.61	12.84
486	27.24	17.54	14.31	34.03	21.01	26.39	12.85	18.65	11.54	11.30	11.30	28.64	117.65	72.28	49.42	23.83	46.31
488	21.66	13.95	11.38	27.05	16.71	20.98	10.22	14.83	9.18	8.99	8.99	22.78	93.54	57.47	39.30	18.95	36.82
490	17.58	11.32	9.24	13.56	7.95	17.03	8.29	12.04	7.45	7.29	7.29	18.48	75.90	46.63	31.89	15.38	29.88
492	15.58	10.03	8.19	19.46	12.02	15.09	7.35	10.67	6.60	6.46	6.46	16.38	67.29	41.34	28.27	13.63	26.48
520	120.87	58.82	73.03	173.60	107.22	134.64	65.58	95.18	58.88	57.66	57.66	96.04	342.99	210.74	144.09	69.49	135.00
521	7.01	3.41	4.24	10.07	4.09	7.81	3.80	3.63	3.42	2.20	2.20	4.84	19.90	12.23	8.36	4.03	7.83
522	24.72	12.03	9.82	23.33	14.41	18.10	8.81	12.79	7.92	7.75	7.75	17.08	70.16	43.10	29.47	14.21	27.61
524	74.03	36.02	29.39	69.87	43.15	54.19	40.16	38.30	23.70	23.20	23.20	51.14	210.06	129.06	88.25	42.56	82.68
526	8.76	5.64	5.30	12.59	7.77	9.76	4.76	6.90	4.27	4.18	4.18	9.22	37.85	23.25	15.90	7.67	14.90
528	36.84	27.28	22.26	52.91	32.68	41.04	19.99	29.01	17.95	17.57	17.57	38.73	159.09	97.74	66.83	32.23	62.62
530	8.46	5.44	5.11	12.15	7.50	9.42	4.59	6.66	4.12	4.03	4.03	8.89	36.51	22.43	15.34	7.40	14.37
532	40.55	19.74	16.10	36.28	20.56	29.69	14.46	20.99	12.98	11.05	11.05	28.02	115.08	70.71	33.84	16.32	31.71
534	26.06	12.68	10.35	24.60	15.19	19.08	9.29	13.49	8.34	8.17	8.17	18.01	73.95	45.44	31.07	10.49	29.11
536	47.77	30.76	25.10	59.66	36.84	46.27	25.91	32.71	20.24	19.81	19.81	50.22	206.27	126.70	60.66	29.25	56.83
538	29.74	22.02	17.97	42.71	26.38	33.13	16.13	23.42	14.49	14.19	14.19	31.27	128.42	78.90	53.95	18.21	50.55
540	10.53	7.80	6.36	10.59	6.54	8.21	4.00	5.81	3.59	3.52	3.52	8.92	36.62	22.50	15.38	7.42	14.41
542	9.17	6.79	5.54	13.17	8.13	10.22	4.98	7.22	4.47	4.37	4.37	7.76	31.88	19.59	13.39	6.46	12.55
544	5.51	4.08	3.33	7.92	4.89	6.14	2.99	4.34	2.69	2.63	2.63	4.67	19.17	11.78	8.05	3.88	7.55

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 2

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To LATA *	951	430	432	434	436	438	440	442	444	446	448	450	452	454	456	458
366	10.97	11.25	7.11	8.85	5.90	44.80	8.57	5.76	8.01	6.16	6.65	3.72	14.21	9.00	4.49	15.61
368	24.67	25.29	15.98	19.90	13.27	100.75	19.28	12.95	18.02	13.85	14.96	8.36	31.95	20.25	10.10	37.35
370	15.31	18.05	9.32	12.35	8.23	71.90	11.97	8.04	11.18	8.59	9.28	5.19	19.83	12.56	6.27	23.18
374	19.06	19.55	12.35	15.38	10.25	77.85	14.90	10.01	13.93	10.70	11.56	6.46	24.69	15.65	7.80	28.86
376	8.97	9.20	5.81	7.24	4.83	36.64	7.01	4.71	6.55	5.04	5.44	3.04	11.62	7.36	3.67	13.58
376	13.60	16.04	8.61	10.97	7.32	63.88	10.63	7.14	9.94	7.64	8.25	4.61	17.62	11.16	5.57	20.59
377	8.34	8.55	5.40	6.73	4.48	34.05	6.52	4.38	6.09	4.68	5.06	2.83	10.80	6.84	3.41	12.62
378	8.14	9.60	5.27	6.57	4.38	38.24	6.36	4.92	5.95	5.26	4.94	2.76	10.55	6.68	3.33	12.33
420	26.18	40.85	25.81	32.15	14.08	162.72	20.46	20.92	19.13	22.37	15.88	8.87	33.91	21.49	10.72	39.64
422	159.79	163.85	103.51	128.93	85.95	428.87	82.08	83.89	76.72	58.95	63.59	35.59	136.02	86.19	42.99	158.99
424	98.96	101.48	64.11	79.85	34.98	265.61	50.83	34.14	47.51	36.51	34.30	19.16	84.24	53.38	26.62	85.62
426	66.29	44.67	42.94	53.49	23.43	177.91	34.05	22.87	31.83	24.45	22.97	12.84	56.43	35.75	17.83	57.35
428	30.80	20.75	19.35	24.85	16.57	82.66	15.82	10.63	14.79	11.36	10.67	5.96	26.22	16.61	8.29	30.64
428	61.85	63.42	40.07	49.91	33.27	166.01	31.77	21.34	29.70	22.82	21.44	11.98	52.65	33.36	16.64	61.54
428	0.00	49.90	47.97	39.27	26.18	198.75	38.04	25.55	35.55	27.32	25.66	14.34	63.03	34.73	17.32	64.07
430	57.18	0.00	56.37	70.21	30.76	355.41	41.74	45.69	41.78	48.95	18.51	11.89	74.07	46.94	23.41	86.58
432	53.41	54.76	0.00	43.09	28.73	143.34	41.74	28.04	25.64	19.70	18.51	11.89	45.46	28.81	14.37	53.14
434	44.57	63.55	43.33	0.00	36.48	277.01	53.01	35.61	32.56	38.08	27.03	15.10	57.73	36.58	16.25	67.48
436	28.54	29.26	28.13	35.04	0.00	116.55	33.94	22.80	20.85	16.02	17.31	9.67	56.25	23.42	11.68	43.21
438	196.95	307.31	127.58	241.83	105.94	0.00	153.94	157.35	218.97	168.25	119.45	66.75	255.12	161.65	80.63	298.19
440	35.99	36.91	35.48	44.19	29.46	147.00	0.00	28.75	40.02	30.75	21.83	12.20	70.95	44.95	22.42	54.49
442	25.90	40.42	25.53	31.80	16.70	160.98	30.81	0.00	28.80	22.13	15.71	8.78	33.55	21.26	10.60	39.22
444	34.76	35.64	22.52	28.05	18.70	216.03	41.34	27.77	0.00	29.69	32.08	17.93	68.52	43.41	14.23	52.63
446	27.36	42.69	17.72	33.59	14.72	170.04	32.54	21.86	30.42	0.00	16.59	9.27	35.44	22.46	11.20	41.42
448	22.23	26.21	14.40	20.63	13.75	104.41	19.98	13.42	28.42	14.35	0.00	13.18	33.12	20.98	10.47	36.71
450	12.63	14.89	9.41	11.72	7.81	59.30	11.35	7.62	16.14	8.35	13.40	0.00	33.12	20.98	5.94	21.98
452	54.66	56.05	35.41	44.11	44.74	223.25	65.02	28.70	60.77	30.69	33.15	18.52	68.18	0.00	68.27	125.94
454	30.08	35.47	22.41	27.91	18.61	141.28	41.14	18.16	38.46	19.42	20.98	11.72	68.18	0.00	21.55	79.70
456	14.72	17.36	10.97	13.66	9.11	69.15	20.14	8.89	12.37	9.50	10.27	5.74	33.37	21.15	0.00	39.01
458	53.67	63.29	39.98	49.81	33.20	252.10	48.25	32.41	45.10	34.65	37.44	20.92	121.67	77.10	38.45	477.67
460	180.28	184.86	116.78	145.46	111.52	736.30	162.05	94.65	151.47	101.21	109.34	20.26	268.55	170.16	84.88	80.60
462	30.42	31.19	19.71	24.55	18.82	124.24	27.34	18.37	25.56	19.64	21.22	11.86	45.32	28.71	21.79	80.60
464	119.29	140.67	88.87	110.69	73.79	560.30	107.23	72.02	100.23	77.01	83.20	46.49	270.42	171.35	85.47	316.08
466	9.80	11.55	7.30	9.09	6.06	46.02	8.81	5.92	12.53	9.63	10.40	5.81	22.21	14.07	4.61	17.06
468	32.96	33.80	21.35	26.60	17.73	134.64	25.77	17.31	24.08	18.51	17.39	9.71	37.13	23.53	11.74	43.40
470	33.05	38.98	24.62	30.67	17.78	155.24	25.84	19.96	27.77	21.34	20.05	11.20	42.81	27.13	13.53	50.04
472	78.43	80.42	50.81	63.29	42.19	320.34	61.31	41.18	57.30	44.03	41.36	23.11	88.34	55.98	27.92	103.26
474	67.66	79.79	43.83	54.60	36.40	317.82	52.69	40.85	66.85	43.68	47.19	26.37	87.65	55.54	27.70	102.45
476	76.63	90.37	57.09	71.11	47.41	359.95	68.89	46.27	64.39	49.48	53.45	29.87	114.16	62.90	31.37	116.03
478	30.39	47.41	19.66	24.52	16.34	188.85	23.75	15.95	22.20	25.96	18.43	10.30	39.36	24.94	12.44	40.01
480	53.99	64.24	34.97	43.56	29.04	335.55	42.20	28.34	39.44	30.31	32.74	18.30	69.93	44.31	22.10	71.08
482	32.68	51.00	21.17	40.13	17.58	133.49	25.55	17.16	23.88	18.35	17.24	11.08	42.34	26.83	11.64	43.03
484	79.56	93.82	59.27	73.83	49.22	568.65	71.52	48.03	66.85	78.16	55.49	31.01	118.52	75.10	37.46	138.53
486	38.51	45.41	28.69	35.74	23.82	275.27	34.62	23.25	32.36	24.86	26.86	15.01	57.37	36.35	18.13	58.31
488	53.20	54.55	34.46	42.93	28.62	330.67	41.59	27.93	39.00	18.29	32.27	18.03	68.92	43.67	21.78	80.55
490	28.32	33.40	18.35	26.28	17.52	133.03	25.46	17.10	23.80	18.29	30.06	16.80	42.19	26.73	13.34	49.32
492	109.10	128.65	70.67	88.03	58.69	512.45	85.28	65.87	91.67	70.44	76.10	42.52	141.33	89.55	44.67	165.19
494	15.50	18.28	10.04	12.51	8.34	72.81	13.94	9.36	13.03	10.01	16.45	6.04	23.09	14.63	7.30	26.99
496	55.92	57.34	36.22	45.12	30.08	228.38	43.71	29.36	40.85	31.39	39.00	18.95	72.43	45.90	22.89	84.66
498	44.46	45.59	28.80	35.87	23.92	181.59	34.75	23.34	37.36	24.96	31.01	17.33	57.59	36.49	18.20	67.32
500	36.07	36.99	23.37	29.11	19.40	169.44	28.20	18.94	30.31	23.29	38.29	14.06	46.73	34.05	14.77	54.62
502	31.98	32.79	20.72	25.80	17.20	150.21	25.00	16.79	26.87	20.65	22.31	12.46	41.43	26.25	13.09	48.42
504	163.02	167.16	105.60	131.54	87.69	765.69	127.42	85.59	119.11	91.52	98.87	55.25	211.17	133.80	66.74	246.83
506	9.46	9.70	6.13	7.63	5.09	38.63	7.39	4.97	6.91	5.31	5.74	3.21	12.25	7.76	3.87	14.32
508	33.34	34.19	21.60	26.91	17.94	136.19	26.06	17.51	24.36	18.22	20.22	11.30	43.19	27.37	13.65	50.49
510	99.84	102.38	64.67	80.56	53.70	407.77	78.04	52.42	72.94	56.05	60.55	33.84	129.33	81.95	28.61	105.82
512	52.6	54.5	31.65	41.51	28.68	73.47	14.06	9.44	13.14	10.10	10.91	6.10	23.30	14.76	7.36	27.24
514	75.61	77.53	48.98	61.01	40.67	355.14	59.10	39.70	55.24	42.45	52.74	29.47	97.94	62.06	30.96	114.48
516	17.35	17.80	11.24	14.00	9.34	81.51	13.57	9.11	14.58	11.20	12.10	6.76	22.48	14.24	7.11	26.28
518	38.29	36.09	24.80	44.13	20.60	223.40	42.75	28.72	39.96	30.71	33.17	18.54	49.60	31.43	15.68	57.97
520	24.60	26.04	22.77	28.36	18.91	143.56	27.47	18.45	25.68	19.73	21.32	11.91	45.53	28.85	10.07	37.35
522	68.62	100.53	44.45	79.10	36.91	400.41	76.63	51.47	71.63	55.04	59.46	33.22	126.99	80.47	28.10	103.90
524	42.72	62.58	39.54	49.25	32.63	249.28	47.71	32.04	44.59	34.26	37.02	20.68	79.06	50.10	24.99	92.41
526	17.40	17.85	11.27	14.04	9.36	71.08	13.60	9.14	12.72	9.77	10.56	5.90	22.54	14.28	7.13	26.35
528	15.15	15.54	9.81	12.23	8.15	61.88	11.84	7.95	11.07	8.51	13.13	7.34	19.63	12.44	6.20	22.94
530	9.11	9.34	5.90	7.35	4.90	37.21	7.12	4.78	6.66	5.12	7.89	4.41	11.80	7.48	3.73	13.80

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 2

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T- LATA #	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
366	45.76	7.11	38.47	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	
368	102.90	16.00	86.52	86.44	2.86	6.85	7.62	16.01	19.03	21.25	47.79	13.10	7.49	20.42	8.40	20.94	29.94	9.53	10.34	480	
370	63.86	14.18	53.69	4.00	6.44	15.40	17.15	36.01	42.81	47.79	16.88	29.47	16.88	30.42	18.88	29.94	23.25	21.44	23.25	478	
374	79.51	12.36	66.86	4.98	4.98	11.90	20.16	22.83	26.56	29.65	10.45	18.28	10.45	28.50	11.72	28.50	16.59	13.31	16.59	479	
376	37.42	5.82	31.46	2.34	2.34	5.60	6.24	13.10	15.57	17.38	13.02	22.77	13.02	35.49	14.59	35.49	17.97	16.57	17.97	479	
976	56.74	12.60	47.71	3.55	3.55	12.92	14.39	19.86	23.60	26.35	9.29	16.25	6.13	14.52	5.97	14.52	8.46	7.80	8.46	479	
977	34.77	5.41	29.24	2.18	2.18	5.20	5.79	12.17	14.47	16.15	5.69	9.96	5.69	25.33	10.41	25.33	11.82	11.82	14.74	479	
978	48.52	7.54	28.56	2.13	2.13	7.73	8.61	11.89	14.13	16.00	5.56	9.72	5.56	13.50	5.55	13.50	7.86	7.86	7.86	479	
420	135.67	21.09	79.86	6.84	6.84	14.21	15.83	50.58	39.51	44.10	23.66	41.38	23.66	42.39	26.52	42.39	19.79	19.79	24.68	479	
422	544.13	84.58	320.28	27.42	27.42	57.00	63.47	133.31	137.78	176.89	62.36	165.97	62.36	170.02	106.35	170.02	79.37	79.37	98.98	479	
424	337.00	52.39	198.36	16.98	16.98	35.30	39.31	82.56	85.33	109.55	36.62	167.55	36.62	105.30	65.86	105.30	49.16	49.16	61.30	479	
426	225.73	35.09	132.86	11.38	11.38	23.64	26.33	55.30	57.16	73.38	25.87	45.25	25.87	70.53	32.93	70.53	32.93	32.93	41.06	479	
428	104.88	16.30	70.99	5.29	5.29	9.55	10.64	25.69	26.56	29.65	12.02	21.02	12.02	32.77	15.30	32.77	15.30	15.30	10.75	479	
949	210.62	32.74	123.97	10.61	10.61	22.06	24.57	51.60	53.33	68.47	24.14	42.22	24.14	65.81	30.72	65.81	30.72	30.72	38.31	479	
951	252.17	39.20	148.43	11.05	11.05	26.41	28.58	71.28	73.85	91.28	28.90	50.55	28.90	68.51	31.98	68.51	31.98	31.98	41.58	479	
430	296.33	46.06	200.58	14.93	14.93	31.04	34.57	72.60	76.29	96.33	51.68	90.39	51.68	92.59	57.92	92.59	43.22	43.22	53.90	479	
432	181.86	28.27	123.10	9.16	9.16	19.05	21.21	44.56	46.05	59.12	20.84	36.45	20.84	56.82	26.53	56.82	26.53	26.53	33.08	479	
434	230.96	35.90	156.33	11.64	11.64	24.19	26.94	56.56	58.48	72.58	26.47	46.29	26.47	72.16	45.14	72.16	45.14	45.14	42.01	479	
436	170.05	26.43	100.09	7.45	7.45	15.49	16.00	36.23	37.44	48.07	16.95	29.64	16.95	46.20	21.57	46.20	21.57	21.57	27.43	479	
438	1020.58	158.65	690.82	51.43	51.43	106.90	119.05	250.04	297.19	331.77	177.99	311.30	177.99	485.26	131.08	485.26	226.54	226.54	282.51	479	
440	214.49	33.34	126.25	9.40	9.40	19.54	18.92	45.69	47.23	60.63	21.37	37.39	21.37	58.28	23.95	58.28	23.95	23.95	33.93	479	
442	134.22	23.99	90.85	6.76	6.76	14.06	15.66	32.88	39.08	43.63	15.38	26.90	15.38	41.94	17.24	41.94	19.58	19.58	24.42	479	
444	207.14	32.20	121.92	13.81	13.81	18.87	21.01	44.13	52.45	58.55	20.64	36.10	20.64	56.28	23.13	56.28	26.27	26.27	49.86	479	
446	141.77	25.34	95.96	10.87	10.87	14.85	16.54	34.73	41.28	46.09	24.72	28.42	24.72	67.41	18.21	67.41	19.32	19.32	39.24	479	
448	132.47	23.68	89.67	10.16	10.16	12.07	13.44	28.22	31.58	36.06	15.18	26.55	15.18	41.39	14.80	41.39	19.32	19.32	24.10	479	
450	86.53	13.45	50.93	5.77	5.77	6.85	7.63	16.03	21.91	24.46	8.62	15.08	8.62	23.51	9.66	23.51	10.98	10.98	13.69	479	
452	325.74	50.64	291.76	21.72	21.72	25.80	28.73	60.34	71.72	92.08	32.46	56.78	32.46	88.50	36.38	88.50	41.32	41.32	51.53	479	
454	206.13	32.04	184.63	13.75	13.75	16.33	18.18	38.19	45.39	50.67	20.54	35.93	20.54	56.01	26.15	56.01	26.15	26.15	32.61	479	
456	100.90	23.87	90.37	4.42	4.42	7.99	8.90	18.69	22.22	24.80	10.05	17.59	10.05	27.41	12.80	27.41	12.80	12.80	16.96	479	
458	559.75	87.01	329.47	16.12	16.12	29.13	32.44	68.14	80.99	90.42	31.88	55.75	31.88	99.94	35.72	99.94	40.57	40.57	58.18	479	
460	0.00	292.25	1106.61	54.14	54.14	97.85	108.97	228.88	272.04	303.69	107.06	187.25	107.06	291.89	119.36	291.89	136.27	136.27	169.94	479	
939	317.24	0.00	186.73	9.14	9.14	16.51	18.39	38.62	45.90	51.24	18.07	31.60	18.07	49.25	20.25	49.25	22.99	22.99	28.67	479	
952	1244.06	193.39	0.00	35.83	35.83	64.75	72.11	151.45	180.01	200.95	70.84	123.91	70.84	222.12	79.39	222.12	90.17	90.17	129.32	479	
953	67.15	10.44	39.53	0.00	0.00	5.32	5.92	12.44	17.00	18.98	6.69	11.70	6.69	18.25	7.50	18.25	8.52	8.52	10.62	479	
462	170.82	26.55	100.55	7.49	7.49	0.00	30.32	63.69	49.74	84.50	19.58	52.11	19.58	53.37	21.94	53.37	24.92	24.92	31.07	479	
464	196.97	30.62	115.94	8.63	8.63	31.40	0.00	73.43	57.36	97.44	22.57	39.48	22.57	61.54	25.30	61.54	28.73	28.73	35.83	479	
466	406.43	63.18	239.22	17.81	17.81	64.78	72.14	0.00	118.35	201.05	46.58	123.97	46.58	126.99	79.44	126.99	59.28	59.28	73.93	479	
468	403.23	62.68	237.34	20.32	20.32	42.24	47.04	98.79	0.00	199.47	46.21	80.83	46.21	125.99	89.51	125.99	89.51	89.51	101.37	479	
470	456.69	70.99	268.81	23.01	23.01	72.79	81.07	170.26	202.37	0.00	79.64	139.30	79.64	217.14	58.66	217.14	101.37	101.37	133.07	479	
472	157.46	24.48	92.68	7.94	7.94	16.49	18.37	38.58	45.85	77.89	0.00	48.03	0.00	74.87	34.95	74.87	34.95	34.95	43.59	479	
474	229.77	43.49	164.67	14.10	14.10	44.59	32.63	104.30	81.47	138.40	48.79	0.00	54.68	87.41	62.10	87.41	62.10	62.10	80.81	479	
956	169.37	26.33	99.69	8.54	8.54	17.74	19.76	63.14	49.32	55.06	19.41	51.66	19.41	52.92	24.71	52.92	24.71	24.71	30.81	479	
476	474.12	73.70	320.93	23.89	23.89	49.66	55.30	116.16	138.06	234.54	82.68	95.04	82.68	109.12	27.48	109.12	131.09	131.09	168.1	479	
478	275.70	42.86	186.62	13.89	13.89	28.88	32.16	67.55	80.28	89.62	48.08	55.26	48.08	104.12	35.41	104.12	104.12	104.12	136.57	479	
480	650.17	101.07	382.69	32.77	32.77	68.10	75.84	138.51	288.11	211.36	74.51	130.32	74.51	203.15	62.29	203.15	203.15	203.15	268.61	479	
482	92.38	14.36	62.53	4.66	4.66	8.41	9.37	19.68	26.90	30.03	10.59	18.52	10.59	32.10	18.85	32.10	32.10	32.10	40.61	479	
484	333.22	51.80	196.13	14.60	14.60	30.35	33.80	70.99	97.03	108.32	33.21	58.08	33.21	104.12	38.61	104.12	104.12	104.12	136.57	479	
486	264.95	41.19	155.95	13.35	13.35	24.13	26.87	56.45	77.15	74.90	26.40	46.18	26.40	62.78	29.59	62.78	38.65	38.65	48.20	479	
488	214.98	33.42	145.52	10.83	10.83	19.58	21.81	45.80	62.60	69.89	24.64	37.47	24.64	67.17	31.36	67.17	31.36	31.36	39.11	479	
490	190.58	29.62	112.17	9.60	9.60	17.36	19.33	40.60	55.50	61.95	21.84	33.22	21.84	59.55	27.80	59.55	27.80	27.80	34.18	479	
492	680.04	151.01	571.81	42.57	42.57	101.76	172.44	238.01	282.90	315.81	111.34	194.73	111.34	303.54	124.77	303.54	141.71	141.71	176.72	479	
521	39.45	6.13	33.17	2.47	2.47	5.90	6.57	13.81	16.41	18.32	6.46	11.30	6.46	17.61	6.29	17.61	8.22	8.22	9.91	479	
522	139.10	30.89	116.96	8.71	8.71	20.81	23.18	48.68	57.87	64.60	22.77	34.64	22.77	62.09	28.99	62.09	28.99	28.99	31.43	479	
524	416.48	64.74	245.14	26.07	26.07	62.32	69.40	126.75	173.25	193.41	59.29	103.70	59.29	161.65	66.45	161.65	75.47	75.47	94.11	479	
526	75.04	16.66	63.10	4.70	4.70	9.76	12.50	23.84	31.22	34.85	10.68	18.68	10.68	33.49	11.97	33.49	15.64	15.64	19.96	479	
528	450.59	70.04	265.22	19.75	19.75	47.20	52.56	110.39	199.67	146.48	51.64	90.32	51.64	140.79	65.73	140.79	65.73	65.73	81.96	479	
530	103.42	16.08	60.87	4.53	4.53	10.83	12.06	25.34	45.83	33.62	11.85	20.73	11.85	32.31							

To LATA #	482	484	486	488	490	492	From LATA #	521	522	524	526	528	530	532	534	536
366	21.97	3.17	14.15	11.48	9.34	8.20	77.22	2.87	10.44	32.62	4.71	19.69	4.46	18.62	11.61	28.42
368	49.40	7.14	31.82	25.83	21.01	18.44	173.65	9.33	23.49	73.37	10.56	44.28	10.02	41.86	26.12	63.92
370	30.66	4.43	19.74	16.03	13.04	11.44	107.76	4.01	14.57	45.53	6.57	27.48	6.22	22.60	16.21	39.67
374	38.18	5.52	24.59	19.95	16.23	14.25	134.19	7.60	18.15	56.69	8.18	34.22	7.74	32.37	20.18	49.39
376	17.96	2.60	11.57	9.39	7.64	6.71	63.15	3.58	8.54	40.60	3.85	16.10	3.64	15.23	9.50	26.73
976	27.24	3.94	17.54	14.24	11.58	10.17	95.75	3.56	12.95	40.45	5.83	24.41	5.53	23.09	14.40	35.24
977	16.70	2.41	10.75	8.73	7.10	6.23	58.69	3.32	7.94	24.79	3.58	14.96	3.39	14.15	8.83	21.60
978	18.75	2.36	10.50	8.52	6.93	6.09	57.31	2.13	7.75	24.21	3.49	14.61	3.31	12.02	8.62	21.10
979	29.36	6.59	29.36	23.84	19.33	17.02	105.32	5.18	18.85	58.88	8.49	35.54	8.04	33.61	20.96	58.99
422	182.87	26.42	117.77	95.60	77.76	68.26	367.31	20.80	75.60	236.16	34.06	142.52	32.26	134.82	84.07	236.60
424	113.26	16.37	72.94	59.21	48.16	42.28	227.49	12.88	46.82	148.26	21.09	88.27	19.98	83.50	52.07	146.53
426	75.86	10.96	48.86	39.66	32.26	28.32	152.38	8.63	31.36	97.97	14.13	59.12	13.38	59.15	34.88	68.71
428	35.25	5.09	22.70	18.43	14.99	13.16	70.80	4.01	14.57	45.52	6.56	27.47	6.22	18.19	11.34	31.92
949	70.78	10.23	45.59	37.00	30.10	26.42	142.18	9.64	29.26	91.41	13.18	55.17	12.49	36.53	32.54	64.11
951	84.75	12.25	54.58	44.30	36.04	31.64	170.22	9.64	35.03	108.44	15.78	66.05	14.95	43.73	27.27	76.75
430	114.53	16.55	64.14	52.06	42.35	37.18	200.03	11.32	41.17	128.61	18.55	77.62	17.57	73.42	45.79	128.85
432	61.12	8.83	39.36	31.95	25.99	22.82	122.76	6.95	25.27	78.93	11.38	47.63	10.78	31.54	28.10	55.35
434	77.62	11.22	49.99	40.58	33.00	28.98	155.91	8.83	32.09	100.24	14.46	50.49	13.69	57.22	35.69	100.43
436	49.70	7.18	32.01	25.98	21.13	18.55	99.82	5.65	20.54	64.18	9.26	38.73	8.77	25.65	22.85	45.01
438	394.44	57.00	220.89	179.30	157.72	147.24	792.27	39.00	141.79	442.94	63.88	307.41	69.58	252.86	157.69	443.77
440	62.68	10.42	40.37	32.77	26.65	23.40	125.90	7.13	25.91	80.95	11.67	48.85	11.06	46.21	28.82	81.10
442	51.87	7.50	38.99	36.39	29.60	25.99	121.59	5.88	18.65	58.25	8.40	35.16	7.96	33.25	20.74	58.36
444	59.61	10.06	38.99	36.39	29.60	25.99	121.59	5.88	18.65	58.25	8.40	35.16	7.96	33.25	20.74	58.36
446	54.79	7.92	30.69	24.91	23.30	20.45	95.70	5.42	19.70	61.53	8.87	37.13	9.67	35.13	21.91	61.65
450	59.08	4.20	16.29	15.20	12.37	10.86	50.79	2.88	10.45	32.66	4.71	22.66	5.03	18.64	11.63	32.72
452	95.19	15.82	61.31	49.76	40.48	35.54	191.21	10.83	39.35	123.93	17.73	74.19	16.79	49.13	43.77	123.16
454	60.24	10.01	38.80	31.49	29.46	22.49	121.00	6.85	24.90	77.79	11.22	46.95	10.63	31.09	27.70	77.94
456	29.49	4.90	18.99	15.41	12.54	11.01	59.22	3.35	12.19	26.65	5.49	22.98	5.20	15.22	9.49	26.70
458	107.50	17.86	69.23	56.19	45.71	40.13	215.92	12.22	44.44	97.17	20.02	83.78	18.96	55.47	34.59	97.36
460	361.05	52.17	232.53	188.74	153.52	134.78	507.65	28.74	104.48	326.38	47.07	281.39	63.69	186.32	116.20	337.00
939	60.92	8.80	39.24	31.85	25.91	22.74	122.37	4.85	25.19	55.07	11.35	47.48	10.75	31.44	19.61	55.18
952	238.91	39.70	153.87	124.89	116.83	99.18	479.88	27.17	98.76	215.97	44.50	186.20	42.14	123.29	76.89	216.38
953	22.57	3.26	12.64	11.80	9.60	8.42	39.48	2.23	8.11	25.34	3.66	15.29	3.46	14.47	9.02	25.39
462	66.02	8.30	36.97	30.01	24.41	21.43	132.61	7.51	27.29	85.26	10.69	51.45	11.65	42.32	26.39	74.28
464	76.13	9.57	42.63	34.60	28.15	24.71	232.68	8.66	31.47	98.31	14.18	59.33	13.43	48.80	35.00	85.65
466	136.59	19.74	87.97	71.40	58.08	50.99	315.51	17.86	64.93	176.39	25.44	122.42	27.71	100.70	62.80	176.83
468	237.15	22.52	100.37	81.47	66.27	58.18	313.03	17.72	64.42	201.26	29.03	184.83	41.83	114.89	71.55	201.64
470	176.50	25.50	113.67	80.23	75.05	65.89	354.52	20.07	72.96	227.94	32.87	137.56	31.13	113.15	70.56	198.58
472	60.86	8.79	34.08	27.66	25.88	22.72	122.23	6.92	25.16	68.34	9.86	47.43	10.73	39.01	24.33	68.47
474	108.13	15.62	60.55	49.15	39.98	35.10	217.18	12.30	38.87	121.42	17.51	84.27	19.07	69.32	43.23	121.65
956	56.92	8.22	36.66	29.76	24.20	21.25	131.48	6.47	23.53	73.51	10.60	44.36	10.04	41.96	26.17	73.65
476	183.24	26.48	118.01	95.79	77.92	68.40	368.06	20.84	75.75	205.77	34.13	142.81	32.32	117.47	73.26	206.16
477	88.70	12.82	57.13	46.37	37.72	33.11	178.16	10.09	36.67	99.61	16.52	69.13	15.65	56.86	35.46	99.80
478	106.55	15.40	68.62	55.70	45.31	39.78	214.02	10.54	38.30	119.65	17.26	83.04	18.80	68.31	42.60	119.88
480	39.71	5.74	25.57	20.76	16.88	14.82	113.94	6.45	16.41	51.28	7.40	30.95	7.00	29.27	18.26	51.38
482	0.00	55.25	161.83	199.90	162.60	142.74	504.72	28.57	103.88	282.18	46.80	195.84	67.45	161.09	100.46	325.12
484	54.33	0.00	22.99	28.40	23.10	20.28	62.36	3.53	12.83	40.09	6.85	27.83	6.30	22.89	14.27	40.17
486	128.78	18.61	0.00	102.45	54.76	48.07	258.68	14.64	53.24	166.31	23.99	152.74	34.57	94.94	59.21	166.63
488	155.82	22.52	100.36	0.00	66.26	58.17	178.65	10.13	42.33	114.99	19.07	79.81	18.06	65.64	40.94	132.49
490	126.44	18.27	53.51	66.10	0.00	47.20	145.12	8.22	29.87	93.30	15.47	64.76	14.66	53.26	33.22	93.48
492	112.08	16.20	47.44	58.59	47.66	42.00	128.65	7.28	30.45	82.71	13.72	57.40	12.99	47.22	29.45	82.87
520	375.46	47.18	241.81	170.68	138.83	121.88	0.00	64.97	236.19	484.87	69.93	232.63	66.23	276.80	172.62	485.79
521	21.78	2.74	14.03	9.90	8.05	7.07	66.58	0.00	13.70	42.81	4.06	16.98	3.84	16.06	15.24	28.18
522	76.80	9.65	49.46	40.15	28.40	28.67	234.74	13.29	0.00	150.92	21.77	91.08	13.55	56.62	53.73	99.37
524	199.96	28.89	148.09	104.53	85.02	74.64	461.87	39.79	144.65	0.00	42.83	179.22	40.56	257.97	160.88	297.52
526	41.43	5.99	26.68	21.66	17.62	15.47	83.22	4.71	26.06	53.50	0.00	49.14	11.12	30.54	19.05	81.57
528	174.15	25.16	170.67	91.04	74.05	65.01	349.79	19.80	109.55	224.89	49.36	0.00	46.75	128.39	80.06	225.32
530	60.83	5.78	39.17	20.90	17.00	14.92	80.29	4.55	16.52	51.62	11.33	47.41	0.00	29.47	18.38	51.72
532	109.55	15.83	81.13	57.27	46.58	40.89	253.04	14.33	52.08	247.57	23.46	98.18	22.22	0.00	88.14	248.04
534	70.59	10.17	52.14	36.80	29.93	26.28	162.60	14.01	50.99	159.09	15.08	63.09	14.28	90.82	0.00	104.74
536	225.79	28.37	145.42	118.04	83.49	73.29	453.53	25.68	93.34	291.59	64.00	175.98	39.83	253.31	103.81	0.00
538	140.57	17.65	90.53	73.49	51.98	52.46	282.36	15.99	88.43	181.54	39.84	109.56	24.80	157.71	98.35	276.77
540	49.79	5.04	32.07	26.04	21.17	18.59	70.01	5.66	20.58	64.30	9.27	38.81	8.78	36.71	22.69	64.42
542	43.35	6.26	32.11	22.66	18.43	16.18	87.07	4.93	17.92	55.98	9.28	33.79	7.65	36.75	19.93	64.50
544	26.07	3.77	19.31	13.63	11.08	9.73	52.36	2.96	10.78	33.66	5.58	20.32	4.60	22.10	11.93	38.79

To LATA #	538	540	542	544	546	Traffic(Erlang)	From LATA #	552	554	556	558	560	562	564	566	568
366	20.00	6.06	7.26	4.22	6.75	3.74	548	3.27	60.06	10.64	10.88	63.09	7.30	11.10	25.50	7.27
368	44.98	13.63	16.33	9.48	15.17	8.41	550	7.35	135.06	23.93	24.48	141.88	16.41	24.96	57.35	16.35
370	27.91	8.46	10.13	5.89	9.41	5.22	552	4.56	83.81	14.85	15.19	88.05	10.18	15.49	35.59	10.15
374	34.76	10.53	12.62	7.33	11.72	6.50	554	5.68	104.36	18.49	18.91	109.64	12.68	19.29	44.31	12.63
376	16.36	4.96	5.94	3.45	5.52	3.06	556	2.67	49.11	8.70	8.90	51.59	5.97	9.08	20.85	5.95
378	24.80	7.51	9.00	5.23	8.36	4.64	558	4.05	74.47	13.19	13.50	78.23	9.05	13.77	20.85	9.01
379	15.20	4.60	5.52	3.21	5.13	2.84	560	2.48	45.64	8.09	8.27	47.95	5.54	8.44	19.38	5.03
380	14.84	4.50	5.39	3.13	5.01	2.77	562	2.42	44.58	7.90	8.08	46.83	5.41	8.24	18.93	5.40
420	36.10	12.58	10.55	6.13	9.80	7.76	564	4.75	124.65	22.08	22.59	130.95	15.14	16.13	37.05	15.09
422	144.77	50.44	42.30	24.57	39.31	21.78	566	19.04	499.93	88.57	89.42	525.19	60.73	64.69	148.60	60.52
424	89.66	31.24	26.20	15.22	24.34	13.49	568	11.79	309.62	54.85	55.28	227.69	37.61	40.06	92.03	37.48
426	60.06	20.92	17.55	10.19	16.31	9.04	570	7.90	145.18	36.74	36.31	152.51	25.19	26.83	61.64	25.11
428	19.53	9.72	8.15	4.74	7.58	4.04	572	3.67	67.45	17.07	17.22	70.86	11.70	12.47	28.64	11.66
499	56.04	19.52	16.37	9.51	15.21	8.43	574	7.37	135.46	34.28	34.55	142.30	23.51	25.04	57.52	23.43
501	46.96	23.38	19.60	11.39	18.22	10.09	576	8.62	162.18	41.04	41.39	170.37	19.70	20.98	68.86	28.05
430	78.84	27.47	23.04	13.38	21.40	16.95	578	10.37	272.25	48.23	48.94	286.01	33.07	35.23	80.92	32.96
432	48.39	16.86	14.14	8.21	13.14	7.28	580	6.36	167.09	29.60	29.99	175.53	20.30	21.62	49.66	20.23
434	61.45	21.41	17.95	10.43	16.68	13.21	582	8.08	212.20	37.59	37.92	222.92	25.78	27.46	63.07	25.69
436	39.34	13.71	11.50	6.68	10.58	5.92	584	5.17	135.86	24.07	24.06	147.04	17.00	17.58	40.38	16.45
438	271.54	94.60	79.34	46.09	105.52	58.37	586	51.00	937.68	166.12	169.92	985.05	113.90	123.32	398.15	162.15
440	49.62	17.29	14.50	8.42	13.47	7.47	588	6.52	171.36	30.36	31.05	180.02	20.82	22.17	50.93	20.74
442	35.71	12.44	10.43	6.06	9.70	7.68	590	4.70	123.32	21.85	22.35	129.55	14.98	15.96	36.65	14.93
444	47.92	16.70	14.00	8.13	13.01	10.30	592	9.00	165.49	29.32	29.99	173.85	20.10	20.59	70.27	28.62
446	37.72	13.14	11.02	6.40	10.24	8.11	594	7.08	130.26	23.08	23.60	136.84	15.82	16.48	55.31	22.53
448	35.25	12.28	14.71	8.55	13.67	7.58	596	6.62	121.71	24.80	24.06	147.04	17.00	17.58	40.38	16.45
450	20.02	6.97	8.36	4.85	5.44	4.30	598	3.76	69.13	12.25	12.53	72.62	8.40	12.78	29.35	11.95
452	75.36	26.26	22.02	12.79	20.46	11.34	600	9.91	260.24	46.10	47.16	273.39	31.61	48.10	77.35	31.50
454	47.69	16.62	13.93	8.10	12.95	10.25	602	6.27	164.69	29.18	29.84	173.01	20.01	30.44	69.93	28.48
456	23.34	8.13	6.82	3.96	6.34	3.51	604	3.07	80.61	14.28	14.23	84.68	9.79	10.43	23.96	9.76
458	65.10	28.65	24.87	14.45	23.10	12.60	606	11.19	293.88	52.06	53.26	308.72	35.70	54.32	87.35	35.57
460	200.09	99.59	83.52	48.52	77.60	43.01	608	37.58	690.94	174.86	175.21	1036.93	119.90	127.71	293.38	119.48
462	33.76	16.80	14.09	8.19	13.09	7.26	610	6.34	166.56	29.51	30.18	103.93	20.23	30.79	49.51	28.80
464	189.14	65.90	55.26	32.11	51.35	28.46	612	24.87	653.14	115.71	118.36	686.14	79.34	120.73	277.33	112.95
466	15.54	5.41	4.54	2.64	4.22	3.34	614	2.92	53.65	9.50	9.72	56.36	6.52	9.92	22.78	9.28
468	45.45	15.83	13.28	11.02	17.63	9.77	616	8.54	156.95	27.80	28.44	164.88	19.07	29.01	66.64	19.00
470	52.41	18.26	21.87	12.71	20.33	11.26	618	9.84	180.97	32.06	32.80	190.11	21.98	33.45	76.84	21.91
472	108.14	37.67	31.60	18.36	41.94	23.24	620	20.31	373.42	66.15	67.67	392.28	45.36	48.32	158.56	45.20
474	123.38	53.40	44.78	26.02	41.61	26.52	622	20.15	426.05	75.48	77.14	447.58	51.75	68.48	157.31	64.07
476	41.89	14.60	12.79	7.65	16.25	9.00	624	22.82	419.59	74.33	76.04	440.79	50.97	77.56	178.17	72.56
478	21.27	7.65	13.17	12.63	20.21	16.00	626	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
480	45.06	15.70	13.15	7.65	12.23	9.69	628	5.92	155.61	27.57	28.20	163.47	18.90	20.13	103.14	31.12
482	126.15	43.95	52.65	30.59	48.93	27.11	630	23.69	435.61	88.75	88.94	457.62	60.85	80.52	184.97	75.33
484	21.27	7.65	13.17	12.63	20.21	16.00	632	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
486	45.06	15.70	13.15	7.65	12.23	9.69	634	5.92	155.61	27.57	28.20	163.47	18.90	20.13	103.14	31.12
488	126.15	43.95	52.65	30.59	48.93	27.11	636	23.69	435.61	88.75	88.94	457.62	60.85	80.52	184.97	75.33
490	21.27	7.65	13.17	12.63	20.21	16.00	638	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
492	45.06	15.70	13.15	7.65	12.23	9.69	640	5.92	155.61	27.57	28.20	163.47	18.90	20.13	103.14	31.12
494	126.15	43.95	52.65	30.59	48.93	27.11	642	23.69	435.61	88.75	88.94	457.62	60.85	80.52	184.97	75.33
496	21.27	7.65	13.17	12.63	20.21	16.00	644	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
498	45.06	15.70	13.15	7.65	12.23	9.69	646	5.92	155.61	27.57	28.20	163.47	18.90	20.13	103.14	31.12
500	126.15	43.95	52.65	30.59	48.93	27.11	648	23.69	435.61	88.75	88.94	457.62	60.85	80.52	184.97	75.33
502	21.27	7.65	13.17	12.63	20.21	16.00	650	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
504	45.06	15.70	13.15	7.65	12.23	9.69	652	5.92	155.61	27.57	28.20	163.47	18.90	20.13	103.14	31.12
506	126.15	43.95	52.65	30.59	48.93	27.11	654	23.69	435.61	88.75	88.94	457.62	60.85	80.52	184.97	75.33
508	21.27	7.65	13.17	12.63	20.21	16.00	656	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
510	45.06	15.70	13.15	7.65	12.23	9.69	658	5.92	155.61	27.57	28.20	163.47	18.90	20.13	103.14	31.12
512	126.15	43.95	52.65	30.59	48.93	27.11	660	23.69	435.61	88.75	88.94	457.62	60.85	80.52	184.97	75.33
514	21.27	7.65	13.17	12.63	20.21	16.00	662	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
516	45.06	15.70	13.15	7.65	12.23	9.69	664	5.92	155.61	27.57	28.20	163.47	18.90	20.13	103.14	31.12
518	126.15	43.95	52.65	30.59	48.93	27.11	666	23.69	435.61	88.75	88.94	457.62	60.85	80.52	184.97	75.33
520	21.27	7.65	13.17	12.63	20.21	16.00	668	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
522	45.06	15.70	13.15	7.65	12.23	9.69	670	5.92	155.61	27.57	28.20	163.47	18.90	20.13	103.14	31.12
524	126.15	43.95	52.65	30.59	48.93	27.11	672	23.69	435.61	88.75	88.94	457.62	60.85	80.52	184.97	75.33
526	21.27	7.65	13.17	12.63	20.21	16.00	674	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
528	45.06	15.70	13.15	7.65	12.23	9.69	676	5.92	155.61	27.57	28.20	163.47	18.90	20.13	103.14	31.12
530	126.15	43.95	52.65	30.59	48.93	27.11	678	23.69	435.61	88.75	88.94	457.62	60.85	80.52	184.97	75.33
532	21.27	7.65	13.17	12.63	20.21	16.00	680	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
534	45.06	15.70	13.15	7.65	12.23	9.69	682	5.92	155.61	27.57	28.20	163.47	18.90	20.13	103.14	31.12
536	126.15	43.95	52.65	30.59	48.93	27.11	684	23.69	435.61	88.75	88.94	457.62	60.85	80.52	184.97	75.33
538	21.27	7.65	13.17	12.63	20.21	16.00	686	7.87	144.67	25.63	26.22	151.98	17.52	26.74	61.43	25.02
540	45.06	15.70	13.15	7.65	12.23	9.69	688	5.92	155.61	27.57	28.2					

EXHIBIT 5.5 LARA-TO-LARA TRAFFIC MATRIX, Part 2

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To LARA #	570	961	620	624	626	628	Traffic(Erlang)	630	632	634	635	636	638	640	644	646	958
366	2.58	3.79	11.08	5.53	7.23	40.36	5.73	16.91	16.90	14.74	12.16	5.47	5.38	10.80	16.75	6.59	7.38
368	5.80	8.53	24.91	12.44	16.25	90.76	12.88	38.03	38.03	33.14	27.34	12.29	12.29	24.28	37.67	14.82	16.60
370	3.60	5.29	15.46	7.72	10.09	56.32	7.99	23.60	23.60	13.51	16.97	7.63	7.63	15.07	23.38	8.00	10.30
374	4.48	6.59	19.25	9.61	12.56	70.13	9.95	29.39	29.39	25.61	21.13	9.50	9.50	18.76	29.11	11.45	12.83
376	3.20	4.70	13.73	5.96	5.91	33.00	4.68	21.04	21.04	13.82	9.94	4.47	4.47	8.83	13.70	5.39	6.04
976	3.20	4.70	13.73	5.96	5.91	33.00	4.68	21.04	21.04	13.82	9.94	4.47	4.47	8.83	13.70	5.39	6.04
977	1.96	2.88	8.42	4.20	5.49	30.67	4.35	19.56	12.84	11.20	9.24	4.15	4.15	8.21	20.77	7.11	9.15
978	1.91	2.82	8.22	3.57	4.67	26.05	3.70	12.55	8.24	7.19	9.02	4.06	4.06	6.97	12.43	5.01	5.61
420	5.35	5.51	19.99	9.98	13.05	72.84	10.34	30.52	20.04	17.48	17.67	7.94	7.94	19.49	30.23	11.90	13.32
422	21.48	22.11	60.18	40.03	52.32	292.12	41.45	122.41	80.37	70.10	70.85	31.85	31.85	54.71	121.26	33.40	53.44
424	9.31	13.69	49.66	24.79	32.40	180.92	25.67	75.81	49.77	43.41	43.88	19.73	19.73	33.88	75.10	20.68	33.10
426	6.34	9.17	33.26	11.62	15.19	121.18	12.04	50.78	33.34	29.08	29.39	13.21	13.21	22.70	35.21	13.85	15.52
428	2.90	4.26	10.82	5.40	7.06	39.41	5.59	23.59	15.49	13.51	13.66	6.14	6.14	10.55	16.36	6.44	7.21
949	5.82	8.56	31.03	10.85	14.18	79.15	11.23	47.38	31.11	27.13	27.43	12.33	12.33	21.18	32.86	12.93	14.48
951	6.97	10.25	37.16	12.98	16.97	94.76	13.45	56.73	37.24	32.49	32.83	14.76	14.76	25.36	39.34	15.48	17.34
430	11.70	12.04	43.66	21.80	28.49	159.08	22.57	66.66	43.77	38.17	38.58	17.35	17.35	42.56	66.04	25.98	29.10
432	7.18	7.39	26.80	9.36	12.24	68.34	9.70	40.91	26.86	23.43	23.68	10.65	10.65	18.29	28.37	11.16	12.50
434	9.12	9.38	34.03	11.89	15.55	123.99	12.32	51.96	34.11	29.75	30.07	13.52	13.52	23.22	35.47	14.18	22.68
436	5.84	6.01	15.25	7.61	9.95	55.57	7.89	33.27	21.84	19.05	19.25	8.66	8.66	14.87	23.07	9.08	10.17
438	40.28	59.24	150.38	75.07	98.13	547.90	77.74	229.60	150.74	131.48	132.89	59.74	59.74	146.60	227.43	89.49	100.23
440	7.36	7.58	19.24	9.60	12.55	70.09	9.95	41.96	27.55	24.03	24.29	10.92	10.92	18.75	29.09	11.45	12.82
442	5.30	5.45	19.78	6.91	9.03	72.06	10.22	30.19	19.82	17.29	17.48	7.86	7.86	13.50	29.91	8.24	13.18
444	7.11	10.45	26.54	9.27	12.12	67.69	9.60	40.52	26.60	23.20	23.45	10.54	10.54	18.11	40.14	11.06	17.69
446	5.80	6.23	20.89	7.30	9.54	76.11	10.80	31.89	20.94	18.26	18.46	8.30	8.30	14.26	31.59	12.43	13.92
448	5.23	7.69	19.52	6.23	8.92	49.78	10.09	29.80	19.57	17.07	17.25	7.75	7.75	13.32	29.52	11.62	13.01
450	2.97	4.37	7.76	3.87	5.06	28.28	4.01	16.93	11.11	9.69	9.80	4.40	4.40	7.57	16.77	4.62	7.39
452	11.18	11.51	29.22	14.59	19.07	106.45	15.10	44.61	41.84	36.49	36.88	16.58	16.58	28.48	44.19	17.39	19.47
454	7.07	7.28	18.49	9.23	12.06	67.36	9.56	28.23	26.47	23.09	23.34	10.49	10.49	18.02	27.96	11.00	12.32
456	3.46	3.56	9.05	4.52	5.91	32.97	4.68	13.82	12.96	7.91	11.42	5.14	5.14	8.82	13.69	5.38	6.03
458	12.62	13.00	32.99	16.47	21.53	120.20	17.06	50.37	33.07	28.84	41.65	18.72	18.72	32.16	49.90	19.63	21.99
460	29.68	43.65	110.81	55.32	72.31	403.79	57.29	169.18	111.07	96.88	139.89	62.89	62.89	108.02	167.59	65.94	73.86
939	7.15	7.37	18.70	9.33	12.20	68.13	9.67	28.55	18.74	16.35	23.60	10.61	10.61	18.23	28.28	11.13	12.46
952	28.06	28.88	73.32	36.61	47.85	267.15	37.91	111.95	73.50	64.11	92.56	41.61	41.61	71.48	110.89	43.63	48.87
953	2.30	3.39	6.02	3.01	3.93	21.94	3.11	13.14	8.62	7.52	7.60	3.42	3.42	5.87	13.01	3.58	5.73
462	6.74	9.92	25.17	12.57	16.43	91.71	13.01	44.19	29.01	25.31	31.78	14.28	14.28	24.54	38.07	14.98	16.78
464	7.77	11.43	29.02	14.49	18.94	105.74	15.00	50.96	33.46	29.18	36.64	16.47	16.47	28.29	43.89	17.27	19.34
466	16.04	16.51	59.89	29.90	38.08	218.19	30.96	91.43	69.03	60.21	75.60	23.79	23.79	58.38	90.57	35.64	39.92
468	18.30	23.41	59.41	29.66	38.77	216.48	30.72	104.32	68.49	59.74	75.01	23.72	23.72	57.92	89.66	35.36	39.60
470	18.02	26.51	67.29	33.59	43.91	245.18	34.79	102.74	77.57	67.66	84.95	26.73	26.73	65.60	101.77	40.04	44.85
472	6.21	9.14	23.20	11.58	15.14	84.53	11.99	35.42	23.26	20.29	20.50	9.22	9.22	22.62	35.09	13.81	15.46
474	11.04	16.24	43.22	20.58	26.90	150.19	21.31	62.94	41.32	36.04	52.04	16.38	16.38	40.19	62.35	24.53	27.48
956	6.68	6.88	24.96	12.46	16.29	90.93	12.90	38.10	25.02	21.82	23.60	9.91	9.91	16.10	26.33	14.85	16.63
476	18.71	27.52	69.86	34.88	45.59	254.53	36.12	106.66	70.03	61.08	81.73	27.75	27.75	68.10	105.66	41.57	46.56
477	9.06	13.32	33.82	16.88	22.07	123.21	17.48	51.63	33.90	29.57	42.69	13.43	13.43	32.97	51.15	20.12	22.54
478	10.88	16.00	40.62	20.28	26.51	148.01	21.00	62.02	40.72	35.52	35.90	16.14	16.14	39.60	61.44	24.17	27.08
480	4.66	6.86	24.87	12.42	16.23	90.62	9.00	37.97	24.93	21.74	21.98	9.88	9.88	24.25	26.33	14.80	16.60
482	29.51	37.74	95.80	47.83	62.52	349.05	49.53	146.27	96.03	83.76	84.66	38.06	38.06	93.39	144.89	57.01	63.85
484	4.19	5.36	13.61	4.76	6.22	34.72	7.04	20.78	13.64	11.90	12.03	5.41	5.41	13.27	20.59	8.10	9.07
486	23.01	22.24	49.10	24.51	32.04	178.89	26.38	74.96	49.22	42.93	61.98	19.51	19.51	47.86	74.26	29.22	32.73
488	12.03	15.38	39.04	13.64	17.83	99.57	16.38	59.61	39.13	34.13	34.50	15.51	15.51	38.06	59.04	23.23	26.02
490	9.76	12.48	31.68	11.07	14.47	80.79	16.38	48.36	31.75	27.70	27.99	12.58	12.58	30.88	47.91	18.85	21.11
492	8.65	11.06	28.08	9.81	12.83	102.31	14.52	42.87	28.15	24.55	24.81	11.16	11.16	27.37	42.47	16.71	18.72
520	36.34	56.39	164.62	71.46	93.41	599.78	85.11	251.34	251.10	143.93	180.71	81.24	81.24	160.48	248.97	97.36	109.72
521	2.22	3.27	9.55	4.15	6.23	34.80	4.94	14.58	9.57	8.35	10.48	4.71	4.71	9.31	14.44	5.68	6.37
522	9.02	11.53	33.67	14.62	19.11	106.68	17.41	51.41	33.75	29.44	36.96	16.62	16.62	32.82	50.93	22.44	25.44
524	23.48	34.54	100.82	43.77	65.79	367.33	52.12	134.24	101.06	88.15	110.67	49.75	49.75	98.28	132.03	59.99	72.26
526	4.87	7.16	15.80	7.89	10.31	57.55	9.39	27.73	18.21	15.88	19.94	8.96	8.96	15.40	27.47	10.81	12.11
528	20.45	26.15	66.39	33.15	43.33	241.90	34.32	116.57	76.53	66.76	83.82	37.68	37.68	64.72	115.48	39.51	50.89
530	4.69	6.00	15.24	7.61	9.94	55.52	7.88	23.27	15.28	13.32	19.24	6.65	6.65	14.86	23.05	9.07	10.16
532	14.79	21.76	48.03	23.98	31.34	174.99	28.56	84.33	55.36	48.29	60.63	27.26	27.26	53.84	83.54	32.87	36.81
534	8.27	12.16	35.49	15.41	23.16	129.32	18.35	54.19	35.58	31.03	38.96	17.52	17.52	34.60	81.69	32.14	36.00
536	26.52	39.00	86.08	42.98	56.18	313.64	51.18	151.15	108.29	75.26	108.67	48.85	48.85	83.92	149.72	58.91	65.98
538	16.51	24.28	53.59	26.76	34.97	195.27	31.86	94.10	61.78	53.89	67.66	30.42	30.42	52.25	93.21	36.68	41.08
540	5.85	9.89	15.28	7.63	9.97	55.66	11.29	33.33	15.32	13.36	19.29	8.67	8.67	21.28	33.02	12.99	14.55
542	5.85	13.10	19.01	6.64	8.68	48.47	9.83	29.02	19.05	16.62	16.80	7.55	7.55	18.53	28.74	11.31	12.67
544	3.52	7.88	11.43	3.99	7.46	41.64	5.91	17.45	11.46	9.99	14.43	6.49	6.49	11.14	17.29	6.80	7.62

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 2

T to LATA #	648	650	652	960	654	656	658	660	664	666	668	670	672	674	676	678
366	5.82	3.41	9.00	1.92	7.72	42.36	11.46	16.34	14.08	29.53	9.41	12.72	29.20	45.37	15.23	5.42
368	13.08	7.66	20.25	4.33	17.37	95.27	25.77	36.75	31.66	66.42	21.15	28.60	65.66	102.04	34.25	12.19
370	8.12	12.56	15.64	2.69	10.78	59.12	15.99	22.80	19.65	41.22	13.13	17.75	40.74	63.32	21.26	7.57
374	10.11	5.92	15.64	3.34	13.42	73.62	19.92	28.40	34.95	51.32	16.35	22.10	50.74	78.85	26.47	9.42
376	4.76	3.98	7.36	1.57	6.32	34.64	9.37	13.36	16.45	24.15	7.69	10.40	23.88	37.10	12.46	4.43
378	7.21	4.22	11.16	2.39	9.58	52.53	14.21	20.26	17.46	36.62	11.66	15.77	36.21	56.26	18.89	6.72
379	4.42	3.70	6.84	1.46	5.87	32.20	8.71	12.42	15.29	22.45	7.15	9.67	22.19	34.48	11.58	4.12
380	4.32	2.53	6.68	1.43	5.73	31.44	8.51	12.13	10.45	21.92	6.98	9.44	21.67	33.68	11.30	4.02
420	12.07	7.07	18.69	4.00	11.22	61.55	16.65	33.91	29.22	61.30	19.52	15.08	34.63	53.81	11.30	6.43
422	48.41	28.35	74.94	9.16	45.01	246.86	66.78	136.02	117.21	245.86	78.30	60.49	138.89	215.83	72.45	25.79
424	29.98	17.56	46.41	5.67	27.88	152.88	41.36	84.24	72.59	152.27	48.49	37.47	86.02	133.67	44.87	15.97
426	20.08	11.76	17.77	3.80	18.67	102.41	27.70	56.43	46.62	101.99	32.48	25.10	57.62	89.53	30.06	10.70
428	9.33	5.46	8.25	1.76	8.68	47.58	12.87	26.22	22.59	47.39	15.09	11.66	26.77	41.60	13.96	4.97
429	18.74	10.97	16.58	3.54	17.42	95.55	25.85	52.65	45.37	95.17	30.31	23.42	53.76	83.54	28.04	9.98
430	22.44	13.14	19.85	4.24	20.86	114.40	30.95	63.04	54.32	113.94	36.29	28.03	64.37	100.02	33.58	11.95
432	26.36	15.44	24.81	8.73	24.51	134.43	36.37	74.08	63.83	133.89	42.64	32.94	75.64	117.54	69.05	14.04
434	16.18	9.47	14.31	3.06	15.04	82.50	22.32	45.46	39.17	82.17	26.17	20.22	46.42	72.13	24.22	8.62
436	20.55	12.03	31.81	3.89	19.10	104.78	28.35	57.74	49.75	104.36	33.23	25.68	58.95	91.61	30.75	10.94
438	13.16	7.70	11.64	2.49	12.23	67.08	18.15	36.97	31.85	66.81	21.28	16.44	37.75	58.65	19.69	7.01
439	90.80	53.17	140.56	30.05	84.42	463.00	125.26	255.12	219.84	461.14	146.86	113.46	260.51	404.81	237.81	84.64
440	16.59	9.72	14.68	3.14	15.43	84.61	22.89	46.62	40.18	84.27	26.84	20.74	47.61	73.98	24.83	8.84
442	11.94	6.99	18.49	2.26	11.10	60.89	16.47	33.55	28.91	60.64	19.31	14.92	34.26	53.24	17.87	6.36
444	16.03	9.38	24.81	3.03	14.90	81.71	22.11	45.03	38.80	81.36	25.92	20.02	45.98	71.44	23.98	8.54
446	12.61	7.39	19.53	4.17	11.73	64.32	17.40	35.44	30.54	64.06	20.40	15.76	36.19	56.23	18.88	6.72
448	11.79	6.90	18.25	3.90	10.96	60.10	16.26	33.12	28.54	59.86	19.06	14.73	33.81	52.55	30.87	10.99
450	6.69	3.92	10.36	1.27	7.23	34.14	9.23	18.81	16.21	34.00	10.83	8.37	19.21	29.84	10.02	3.57
452	25.20	14.76	22.29	4.77	23.43	128.50	34.76	70.81	61.01	127.98	40.76	31.49	72.30	112.35	37.72	13.42
454	15.95	9.34	14.11	3.02	14.83	81.32	22.00	44.81	38.61	80.99	25.79	19.93	45.75	71.10	23.87	8.49
456	4.46	4.57	6.90	1.48	7.26	39.80	10.77	21.93	18.90	39.64	12.63	9.75	22.39	34.80	11.68	4.16
458	16.26	16.66	25.17	5.38	26.46	145.11	39.26	79.96	68.90	144.52	46.03	35.56	81.64	126.87	42.59	15.16
460	54.62	31.98	84.55	18.08	88.87	487.39	131.85	231.42	231.42	485.42	154.59	119.44	274.23	426.13	143.05	50.91
462	9.22	9.44	14.27	3.05	15.00	82.24	22.25	45.32	39.05	81.91	26.09	20.15	46.27	71.90	24.14	8.59
464	36.14	37.04	55.95	11.96	58.80	322.51	87.25	177.71	153.13	321.21	102.30	79.03	181.46	281.97	94.66	33.69
466	5.20	3.04	8.04	0.98	4.83	26.49	7.17	14.60	12.58	26.36	8.40	6.49	14.91	23.16	7.78	2.77
468	17.52	10.26	27.33	5.80	16.29	127.65	34.53	49.24	42.43	89.00	28.34	38.32	87.99	136.72	45.90	14.17
470	35.16	21.01	55.98	11.97	33.62	184.36	49.88	101.60	87.55	183.64	58.48	45.18	103.74	161.21	94.70	33.44
472	40.63	23.79	62.90	13.45	37.78	207.18	56.05	114.16	98.37	206.35	65.72	88.85	204.00	317.00	105.41	37.87
474	14.01	8.20	12.59	4.64	13.02	71.43	19.32	39.36	33.92	71.15	22.66	17.51	40.19	62.46	36.69	13.06
476	15.07	8.82	23.33	4.99	14.01	76.84	20.79	42.34	36.48	76.53	24.37	18.83	43.23	67.18	39.47	8.03
478	42.18	24.70	65.30	13.96	39.22	215.09	58.19	118.52	102.13	214.23	68.23	52.71	121.02	188.06	110.48	39.32
480	20.42	11.96	31.61	6.76	18.98	104.12	28.17	57.37	49.44	103.70	33.03	25.52	58.58	91.03	53.48	19.03
482	24.53	14.36	37.97	8.12	22.81	125.08	33.84	68.92	59.39	124.57	39.67	30.65	70.37	109.35	64.24	22.86
484	15.02	8.79	23.25	4.97	13.96	76.57	20.72	42.19	36.36	43.58	13.88	18.76	43.08	66.95	39.33	8.00
486	57.85	33.87	89.55	19.15	53.78	421.37	113.99	162.53	200.07	293.77	93.56	126.49	290.43	451.30	151.50	53.92
488	8.22	4.81	12.72	2.72	7.64	41.91	11.34	23.09	19.90	41.74	13.29	10.27	23.58	36.64	21.53	7.66
490	29.65	17.36	45.89	9.81	39.38	215.96	58.42	83.30	102.54	150.56	47.95	64.83	148.85	231.30	77.64	27.63
492	13.80	8.60	16.49	7.80	21.92	171.71	46.45	66.23	81.53	119.71	36.13	51.55	118.35	183.91	61.74	21.97
494	19.13	11.20	29.61	6.33	17.78	97.53	26.38	53.74	46.31	97.14	30.94	23.90	54.87	85.27	50.09	17.83
496	16.96	9.93	26.25	5.61	15.76	86.46	33.41	47.64	58.65	86.11	27.42	37.08	85.13	75.59	44.41	15.80
498	86.43	50.61	133.80	28.61	114.80	629.61	170.33	242.85	298.95	436.95	139.79	189.01	433.96	674.33	226.37	60.57
500	5.01	4.19	7.76	1.66	6.66	36.53	9.88	14.09	17.34	25.47	8.11	10.97	25.18	39.12	13.13	4.67
502	17.68	14.79	27.37	5.85	23.48	128.78	34.84	49.67	61.15	89.79	28.59	38.66	88.76	137.93	46.30	16.48
504	52.94	44.28	81.95	17.52	70.31	385.60	104.32	212.47	183.09	268.63	85.62	115.75	265.77	412.99	138.64	49.34
506	9.54	5.58	14.76	3.16	12.67	69.48	18.80	26.80	32.99	48.44	22.04	20.86	47.89	74.41	24.98	8.89
508	40.09	23.47	62.08	13.27	53.24	292.02	79.00	112.64	138.66	203.59	64.84	87.66	201.28	312.77	104.99	37.37
510	9.20	5.39	14.24	3.05	12.22	67.03	18.13	25.85	31.83	46.73	14.88	20.12	46.20	71.79	24.10	6.58
512	41.43	24.26	44.89	9.60	38.52	242.94	65.72	116.40	100.30	210.40	67.01	63.42	145.60	226.26	75.95	27.03
514	26.62	15.59	28.85	6.17	24.75	156.11	42.23	74.80	64.46	135.20	43.06	40.75	93.57	145.39	48.81	17.37
516	51.98	43.48	80.46	17.20	69.04	378.63	117.80	208.64	179.78	377.11	120.10	113.66	260.97	405.53	136.13	48.45
518	32.36	27.07	50.10	10.71	42.98	235.73	63.77	129.89	111.93	234.78	74.77	70.76	162.47	252.47	84.75	30.16
520	11.48	6.72	17.77	3.80	15.24	83.60	26.01	46.06	45.65	83.26	26.52	25.10	57.62	89.53	30.06	10.70
544	6.90	5.77	10.68	2.28	9.17	57.81	15.64	27.70	27.45	50.07	15.95	15.09	34.65	53.84	18.07	6.43

To LATA #	Traffic (ErLang)										From LATA #									
	721	722	724	726	728	730	732	734	736	738	740	742	744	746	748	750	752	754	756	758
366	7.48	101.31	7.28	22.07	14.88	210.50	32.65	6.77	5.42	12.66	7.49	0.12	973							
368	16.83	227.83	16.36	49.63	33.47	473.39	73.43	15.23	12.20	28.48	0.00	0.27								
370	10.44	141.38	10.15	30.80	20.77	293.76	45.57	9.45	7.57	17.67	10.45	0.17								
374	13.01	176.05	12.64	38.35	25.87	365.80	56.74	11.77	9.43	22.00	13.02	0.21								
376	6.12	82.85	5.95	18.05	12.17	172.14	26.70	5.54	4.44	10.35	6.13	0.10								
378	9.28	125.62	9.02	27.37	18.46	281.02	40.49	8.40	6.73	15.70	9.29	0.15								
379	5.69	76.99	5.53	16.77	11.31	159.98	24.82	5.15	4.12	9.62	5.69	0.09								
380	5.55	75.19	5.40	16.38	11.05	156.24	24.24	5.03	4.03	9.40	5.56	0.09								
420	15.53	120.16	8.63	26.18	17.65	249.66	67.77	8.03	6.43	15.02	15.55	0.25								
422	62.30	481.91	34.61	104.98	70.80	1001.30	155.32	32.22	25.80	60.23	35.63	0.56								
424	38.58	298.46	21.43	65.02	43.85	620.13	96.20	19.95	15.98	37.30	22.07	0.35								
426	14.77	199.92	14.36	43.55	29.37	415.38	64.43	13.37	10.70	24.99	14.78	0.23								
428	6.86	92.88	6.67	20.23	13.65	192.99	29.94	6.21	4.97	11.61	6.87	0.11								
449	13.78	186.54	13.40	40.64	27.41	387.58	60.12	12.47	9.99	23.31	13.79	0.22								
951	16.50	223.33	16.04	48.65	32.81	464.03	71.98	14.93	11.96	27.91	16.51	0.26								
430	33.93	262.44	18.85	57.17	38.56	545.29	148.02	17.55	14.05	32.80	33.95	0.54								
432	20.82	161.07	11.57	35.09	23.66	334.66	51.91	10.77	8.62	20.13	11.91	0.19								
434	26.44	204.55	14.69	44.56	30.05	425.01	65.93	13.68	10.95	25.57	15.12	0.24								
436	9.67	130.96	9.40	28.53	19.24	272.11	42.21	8.76	7.01	16.37	9.68	0.15								
438	116.85	903.87	64.91	198.91	232.39	3286.58	509.81	105.76	48.39	112.97	116.94	1.85								
440	21.35	165.18	11.86	35.98	24.27	343.21	53.24	11.04	8.84	20.65	12.21	0.19								
442	15.37	118.87	8.54	25.90	17.46	246.98	38.31	7.95	6.36	14.86	15.38	0.24								
444	20.62	159.52	11.46	34.75	23.44	580.04	89.98	10.67	8.54	19.94	20.64	0.33								
446	16.23	125.56	9.02	27.35	18.45	456.55	70.82	8.39	6.72	15.69	16.24	0.26								
448	15.17	117.33	8.43	25.56	30.17	426.61	66.18	13.73	6.28	25.66	15.18	0.24								
450	8.61	66.64	4.79	14.52	9.79	242.31	37.59	7.80	3.57	8.33	8.62	0.14								
452	32.43	250.86	18.01	54.65	36.86	521.23	80.85	16.77	13.43	31.35	18.55	0.29								
454	20.52	158.75	11.40	34.58	23.32	329.85	51.17	10.61	8.50	19.84	11.74	0.19								
456	5.74	77.70	5.58	16.93	11.42	161.45	25.04	5.20	4.16	9.71	5.74	0.09								
458	20.93	283.28	20.34	61.71	41.62	588.59	91.30	18.94	15.17	35.41	20.94	0.33								
460	70.29	951.47	68.33	207.28	139.79	1976.94	306.66	63.61	50.94	118.92	70.34	1.11								
939	11.86	160.55	11.53	34.98	23.59	333.59	51.75	10.73	8.60	20.07	11.87	0.19								
952	81.39	629.59	45.21	137.15	92.50	1308.16	202.92	42.09	33.71	78.69	46.55	0.74								
953	6.69	51.72	3.71	11.27	7.60	188.04	29.17	3.46	2.77	6.46	6.69	0.11								
462	19.56	264.75	19.01	57.68	38.90	550.10	85.33	17.70	14.17	33.09	19.57	0.31								
464	22.55	305.28	21.92	66.50	44.85	634.30	98.39	20.41	16.34	38.15	22.57	0.36								
466	46.53	359.95	45.24	137.23	92.55	1308.83	203.03	42.12	33.72	78.73	46.57	0.74								
468	46.17	624.96	44.88	136.15	91.62	1298.54	201.43	41.78	33.46	78.11	46.20	0.73								
470	52.29	707.81	50.83	154.20	103.99	1470.68	228.13	47.32	37.89	88.47	52.33	0.83								
472	18.03	139.45	10.01	30.38	35.85	507.07	78.66	16.32	13.06	30.50	18.04	0.29								
474	32.03	247.77	17.79	53.98	63.70	900.93	139.75	28.99	13.26	30.97	32.06	0.51								
956	19.39	150.00	10.77	32.68	22.04	311.67	84.61	10.03	6.03	18.75	19.41	0.31								
476	54.28	419.90	52.77	160.08	107.96	1526.81	236.84	49.13	39.34	91.84	54.33	0.86								
478	26.28	355.71	25.54	77.49	52.26	739.08	114.65	23.78	19.04	44.46	26.30	0.42								
480	31.57	244.17	17.53	53.19	62.78	887.83	137.72	28.57	13.07	53.41	31.59	0.50								
482	11.04	149.49	10.73	32.57	21.96	310.60	48.18	9.99	8.00	18.68	11.05	0.18								
484	74.44	1007.69	72.36	219.52	148.05	2093.75	324.78	67.37	53.95	125.94	74.50	1.18								
486	10.58	143.18	10.28	31.19	21.04	297.50	46.15	9.57	7.67	17.90	10.59	0.17								
488	38.15	516.45	37.09	112.51	75.88	1073.07	166.46	34.53	27.65	64.55	38.18	0.61								
489	30.34	410.64	29.49	89.46	60.33	853.22	132.35	27.45	21.98	51.32	30.36	0.48								
490	24.61	333.19	23.93	72.59	48.95	692.30	107.39	22.68	17.84	41.64	24.63	0.39								
492	21.82	295.37	21.21	64.35	43.40	613.72	95.20	19.75	15.81	36.92	21.84	0.35								
520	111.23	1505.68	108.13	328.01	221.21	3128.47	485.29	100.67	80.61	188.19	111.32	1.76								
521	6.45	87.35	6.27	19.03	12.83	181.50	28.15	5.84	4.68	10.92	6.46	0.10								
522	22.75	307.98	22.12	67.09	45.25	639.91	99.26	20.59	16.49	38.49	22.77	0.36								
524	68.12	922.14	66.22	200.89	135.48	1916.00	297.21	61.65	49.37	115.25	68.17	1.08								
526	12.27	166.15	11.93	36.19	24.41	345.22	53.55	11.11	8.89	20.77	12.28	0.19								
528	51.59	698.36	50.15	152.14	102.60	1451.03	225.08	46.69	37.39	87.28	51.63	0.62								
530	11.84	160.29	11.51	34.92	23.55	333.05	51.66	10.72	8.58	20.03	11.85	0.19								
532	53.32	505.19	51.28	110.06	74.22	1049.68	162.83	33.78	27.05	63.14	53.35	0.59								
534	23.98	324.64	23.31	70.72	47.70	674.63	104.63	21.70	17.38	40.57	24.00	0.38								
536	95.56	905.48	65.02	197.26	133.03	1881.38	291.84	60.54	48.48	113.17	66.94	1.06								
538	41.64	563.73	40.48	122.81	82.82	1171.30	181.69	37.69	30.18	70.46	41.68	0.66								
540	24.23	328.05	16.49	71.46	48.20	681.61	105.20	21.93	17.56	41.00	24.25	0.38								
542	21.10	199.92	14.36	43.55	29.37	593.40	92.05	13.37	10.70	24.99	21.11	0.33								
544	12.69	120.22	8.63	26.19	17.66	356.84	55.35	11.48	6.44	15.03	12.70	0.20								

EXHIBIT 5.5 LATR-TO-LATR TRAFFIC MATRIX, Part 3

To LATR #	224	226	228	230	232	234	236	238	240	242	244	246	248	250	252
From LATR #	224	226	228	230	232	234	236	238	240	242	244	246	248	250	252
546	121.88	25.51	95.00	17.54	26.31	53.80	7.79	79.34	44.34	4.71	16.43	4.83	18.78	6.09	24.64
548	69.25	14.50	53.97	9.97	14.95	30.56	4.72	45.07	25.19	2.68	9.33	2.75	10.67	3.46	14.00
550	58.83	12.32	45.85	8.47	12.70	25.97	3.76	38.29	21.40	2.27	7.93	2.33	9.06	2.94	11.89
552	1109.33	232.22	864.64	159.68	239.46	489.63	70.89	722.08	403.54	42.87	213.61	44.00	170.90	55.41	224.28
554	43.96	43.96	163.67	30.23	45.33	132.40	13.42	136.68	76.39	8.12	40.43	8.33	32.35	14.98	42.45
556	124.42	26.04	96.97	17.91	26.86	54.91	7.95	80.98	45.26	4.81	16.77	4.93	19.17	6.21	25.15
558	137.88	41.42	154.23	28.48	42.72	87.34	12.65	128.80	71.98	7.65	26.67	7.85	30.49	9.88	40.01
560	1126.22	235.76	877.80	162.12	243.11	497.09	71.97	733.07	409.68	43.53	151.80	44.67	173.51	56.26	227.69
562	135.96	28.46	105.97	19.57	29.35	60.01	8.69	88.50	49.46	5.25	26.18	5.39	20.95	9.70	27.49
564	191.13	40.01	148.97	27.51	41.26	84.36	12.21	124.41	69.53	7.39	25.76	7.58	29.45	9.55	38.64
566	439.40	91.98	342.48	63.25	94.85	193.94	28.08	286.01	159.84	16.98	58.23	17.43	67.69	21.95	88.84
568	171.71	35.94	133.83	24.72	37.06	75.79	10.97	111.77	62.46	6.84	23.14	6.81	26.45	8.58	34.71
570	48.42	10.14	37.74	6.97	10.45	21.37	3.09	31.51	17.61	1.87	6.53	1.92	7.46	2.42	9.79
572	65.59	13.73	51.12	9.44	14.16	28.95	4.19	42.69	23.86	2.53	8.84	2.60	10.10	3.28	13.26
574	273.84	57.33	213.44	39.42	59.11	120.87	17.50	178.25	99.62	10.58	36.91	10.86	42.19	13.68	55.36
576	130.69	27.36	101.86	18.81	28.21	57.68	8.35	85.07	47.54	5.54	17.62	5.18	20.13	6.53	18.50
578	116.25	34.77	90.61	23.91	35.85	73.30	10.61	108.10	60.41	4.49	22.39	6.59	17.91	8.30	23.50
580	652.76	195.21	726.82	134.23	201.29	411.59	59.59	606.99	339.22	25.23	125.69	36.99	143.66	46.58	131.97
582	100.49	21.04	78.32	20.66	21.69	63.36	9.17	65.41	36.55	3.88	13.35	3.99	15.48	7.17	20.32
584	312.45	93.44	347.90	64.25	96.35	197.01	28.52	290.54	162.37	17.25	60.16	17.70	68.77	22.30	90.24
586	307.62	64.40	239.77	44.28	66.40	135.78	19.66	200.24	111.90	11.89	41.46	12.20	47.39	15.37	62.19
588	266.20	55.73	207.49	38.32	57.46	117.50	17.01	173.28	96.84	10.29	35.88	10.56	41.01	13.30	53.82
590	210.83	44.14	164.33	30.35	45.51	132.94	19.25	173.23	76.69	8.15	28.42	8.36	32.48	10.53	42.62
592	92.61	19.39	72.18	13.33	19.99	40.88	5.92	60.28	33.69	3.58	12.48	3.67	14.27	4.63	18.72
594	197.04	41.25	153.58	40.52	42.53	124.24	17.99	128.26	71.68	7.62	37.94	7.82	30.36	9.84	39.84
596	124.70	26.10	97.19	25.64	26.92	78.63	11.38	81.17	45.36	4.82	24.01	4.95	19.21	8.90	25.21
598	144.68	30.29	112.77	20.83	31.23	63.86	9.25	94.18	52.63	5.59	19.50	5.74	22.29	7.23	29.25
600	193.30	45.13	144.68	30.29	49.65	106.00	12.16	123.86	69.22	7.35	25.65	7.55	29.32	9.50	38.47
602	190.28	39.83	148.31	27.39	41.07	83.99	12.16	123.86	69.22	7.35	25.65	7.55	29.32	9.50	38.47
604	455.72	95.40	355.20	65.60	98.37	201.14	29.12	296.64	165.78	17.61	61.43	18.08	70.21	22.76	92.14
606	393.80	82.44	306.93	56.69	85.00	173.81	25.16	256.33	143.25	15.22	53.08	15.62	60.67	19.67	79.62
608	359.34	131.64	280.07	90.52	77.57	277.55	40.18	409.32	228.75	13.89	84.76	24.94	96.88	31.41	72.65
610	117.26	42.96	112.33	29.54	25.31	90.57	13.11	133.57	74.65	4.53	27.66	8.14	31.61	10.25	41.49
612	144.12	30.17	112.33	20.75	31.11	63.61	9.21	93.81	52.43	5.57	19.43	5.72	22.20	7.20	29.14
614	329.26	68.93	256.63	47.40	71.07	145.33	21.04	214.32	119.77	12.73	44.38	13.06	50.73	16.45	66.57
616	475.15	99.47	370.34	68.40	102.56	209.72	30.36	309.28	172.84	18.36	64.05	18.85	73.20	23.73	96.06
618	174.04	36.43	135.65	43.84	37.57	134.43	19.46	113.28	63.31	6.73	23.46	6.90	26.81	8.69	35.19
620	59.51	12.46	46.39	8.57	12.85	26.27	3.80	38.74	21.65	2.30	8.02	2.36	9.17	2.97	12.03
622	83.80	17.54	65.32	21.11	18.09	64.73	9.37	64.55	30.48	3.24	12.77	3.32	12.91	4.72	16.94
624	945.31	197.89	736.79	136.07	204.05	417.23	60.41	615.31	343.87	36.53	127.42	37.49	145.63	47.22	191.12
626	221.97	46.47	173.01	31.95	47.91	97.97	14.18	144.48	80.75	2.83	9.89	2.91	11.30	3.66	14.83
628	154.58	32.36	120.48	22.25	33.37	68.23	9.88	100.61	56.23	5.97	20.84	6.13	23.81	7.72	31.25
630	1965.57	411.47	1332.00	282.94	424.29	867.55	125.60	1279.41	715.00	75.97	264.94	77.96	302.82	96.18	397.39
632	340.36	71.25	265.28	48.99	73.47	150.22	21.75	221.54	123.81	13.15	45.88	13.50	52.44	17.00	68.81
634	71.90	15.05	56.04	10.35	15.52	31.73	4.59	46.80	26.15	2.78	9.69	2.85	11.08	3.59	14.54
636	54.53	11.41	42.50	7.85	11.77	24.07	3.48	35.49	19.84	2.11	7.35	2.16	8.40	2.72	11.02
638	128.36	26.87	100.04	18.48	27.71	56.65	8.20	63.55	46.69	4.96	17.30	5.09	19.77	6.41	25.95
640	78.49	16.43	61.18	11.30	16.94	34.65	5.02	61.09	28.55	3.03	10.58	3.11	12.09	9.92	15.87
642	1.29	0.27	1.00	0.19	0.28	0.57	0.08	0.84	0.47	0.05	0.17	0.05	0.20	0.06	0.26

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 3

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To LATA #	927	928	929	254	256	932	320	324	325	326	328	922	923	330	332
546	1.37	2.07	0.49	14.28	9.15	1.75	35.51	32.52	20.70	20.42	17.05	38.49	10.41	7.51	16.13
548	0.78	1.17	0.28	11.59	5.20	1.42	20.18	5.98	11.76	16.58	13.84	21.87	8.45	4.27	9.16
550	0.66	1.00	0.24	6.89	4.42	0.84	17.14	17.18	9.99	9.86	11.76	18.58	5.03	3.63	7.79
552	12.48	18.80	0.45	185.72	83.28	22.71	323.22	95.79	188.38	265.57	221.67	350.35	135.40	68.35	146.81
554	3.38	5.08	0.84	35.16	22.52	4.30	87.40	25.90	50.94	50.27	41.96	66.32	25.63	12.94	27.79
556	1.40	2.11	0.50	20.83	9.34	2.55	36.25	51.91	21.13	20.85	24.86	39.29	10.63	7.67	16.47
558	2.23	3.35	0.79	23.19	14.85	2.84	57.66	17.09	33.60	33.16	27.68	62.50	16.91	12.19	18.33
560	12.67	19.08	4.52	188.55	84.54	23.06	328.14	97.25	191.25	188.73	225.04	355.69	96.23	69.40	149.04
562	1.53	2.30	0.55	22.76	10.21	2.78	39.61	11.74	23.09	32.55	27.17	42.94	16.59	6.38	17.99
564	2.15	3.24	0.77	22.40	14.35	2.74	55.69	16.50	32.46	32.03	26.73	42.25	16.33	11.78	17.71
566	4.94	7.45	1.76	51.49	32.98	6.30	128.02	37.94	74.62	73.63	61.46	97.14	37.34	27.07	40.70
568	1.93	2.91	0.69	20.12	12.89	2.46	50.03	14.83	29.16	28.77	24.02	37.96	14.67	10.58	15.91
570	0.54	0.82	0.19	8.11	3.63	0.99	14.11	4.18	8.22	8.11	9.67	15.29	4.14	2.98	6.41
572	0.74	1.11	0.26	7.69	4.92	0.94	19.11	5.66	11.14	10.99	9.17	14.50	5.60	4.04	6.08
574	3.08	4.64	1.10	32.09	20.56	3.92	79.79	23.65	46.50	52.77	38.30	60.54	23.40	13.58	29.17
576	2.21	3.24	0.52	15.32	9.81	1.87	38.08	11.29	21.90	21.90	18.28	28.89	11.17	5.64	13.92
578	2.81	4.26	0.67	19.46	12.47	2.38	48.39	14.34	28.20	27.83	23.23	36.72	14.19	7.16	17.69
580	10.49	15.80	3.74	109.28	70.00	13.36	271.70	80.53	188.36	156.27	130.44	206.16	79.68	40.22	99.34
582	1.62	2.43	0.58	16.82	10.78	2.06	41.63	12.40	24.38	24.06	20.08	31.74	12.27	6.19	13.30
584	3.02	4.51	1.23	36.05	23.09	4.41	103.07	26.56	60.08	59.28	49.48	98.68	38.14	22.14	47.55
586	3.00	4.51	1.07	31.20	19.98	3.81	77.56	22.99	45.21	51.30	42.82	67.68	26.16	13.20	28.36
588	2.37	3.57	0.85	35.30	22.61	3.02	87.76	26.01	51.15	50.47	42.13	66.59	25.73	12.99	27.90
590	3.17	4.57	1.33	10.85	6.95	1.33	26.98	8.00	15.73	22.17	18.51	29.25	11.30	5.71	12.26
592	3.34	5.02	1.13	32.99	21.13	4.03	82.01	24.31	47.80	47.17	39.37	62.23	24.05	12.14	26.08
594	4.58	6.90	1.63	47.74	30.58	5.84	118.69	35.18	69.17	68.26	56.98	90.06	34.80	20.21	37.74
596	1.21	1.83	0.43	18.05	11.56	2.21	44.87	13.30	26.15	25.81	21.54	34.05	13.16	6.64	14.27
598	2.00	3.02	0.71	20.88	13.37	2.55	51.90	15.38	30.25	29.85	24.92	39.38	15.22	7.68	16.50
600	1.60	2.41	0.57	16.69	10.69	2.04	41.50	12.30	24.19	23.87	19.92	31.49	12.17	6.14	13.19
602	0.97	1.46	0.35	10.13	6.49	1.24	25.18	7.46	14.67	14.48	12.09	19.10	7.38	3.73	8.01
604	2.46	3.71	0.88	25.63	16.42	3.13	63.73	18.89	37.14	36.65	30.59	48.35	18.69	9.43	20.26
606	0.51	0.44	0.18	5.31	3.40	0.65	13.20	3.91	7.70	7.59	6.34	10.02	3.87	1.95	4.20
608	1.63	2.45	0.58	16.96	10.86	2.07	42.16	12.49	24.57	24.25	20.24	31.99	12.36	6.24	13.40
610	7.80	11.75	2.78	81.25	52.04	9.94	202.00	59.87	117.73	116.18	96.98	153.27	59.24	42.72	91.75
612	2.14	3.22	0.76	22.30	14.28	2.73	55.44	16.43	32.31	31.69	26.62	42.07	16.26	11.72	25.18
614	5.13	7.72	1.83	53.41	34.21	6.53	132.78	39.35	77.39	76.37	63.74	100.75	38.94	19.66	42.22
616	4.43	6.67	1.58	46.15	29.56	5.64	114.74	34.01	66.87	65.99	55.08	87.06	33.65	16.99	36.48
618	7.08	10.66	2.52	73.69	47.21	9.01	183.22	54.30	106.79	105.38	87.96	139.02	53.79	27.12	58.25
620	2.31	3.48	0.82	24.05	15.40	2.94	59.79	17.72	34.85	34.39	28.70	45.37	17.53	8.85	19.01
622	1.62	2.44	0.58	16.89	10.82	2.07	41.99	12.45	24.47	24.26	20.16	31.86	12.31	10.88	23.36
624	3.70	5.58	1.32	38.59	24.72	4.72	95.93	28.43	55.91	55.56	40.60	127.38	28.13	24.85	53.38
626	5.35	8.05	1.91	55.68	35.67	6.81	138.44	41.03	80.69	139.34	116.31	183.83	40.60	35.87	77.03
628	1.96	2.95	0.70	35.69	22.86	4.36	88.74	26.30	51.72	51.04	42.60	67.33	26.02	13.14	28.21
630	0.57	1.01	0.24	6.97	4.47	0.85	30.35	5.14	10.11	17.45	12.57	23.03	8.90	4.49	9.65
632	1.65	1.42	0.59	17.19	11.01	2.10	42.73	12.66	24.90	24.58	20.51	32.42	12.53	6.33	13.59
634	10.64	16.02	3.79	110.78	70.96	13.55	275.43	81.63	160.53	158.41	132.23	208.99	60.77	71.35	153.25
636	0.83	1.24	0.29	8.60	5.51	1.05	21.37	6.33	12.46	12.51	17.95	28.38	6.27	5.54	11.89
638	2.50	3.76	0.89	26.01	16.66	3.18	64.67	19.17	37.69	35.09	54.33	85.88	18.97	16.75	35.98
640	7.28	11.62	2.62	18.12	11.60	2.22	45.04	13.35	26.25	45.43	37.84	59.80	13.21	11.67	25.06
642	22.11	33.31	7.89	230.35	147.55	28.17	572.69	169.73	333.79	576.42	481.14	760.45	293.90	148.37	318.65
644	3.83	5.77	1.37	39.89	25.55	4.88	99.17	29.39	57.80	99.81	83.31	131.68	50.89	25.69	55.18
646	0.81	1.22	0.29	6.43	5.40	1.03	20.95	6.21	12.21	21.08	17.60	27.82	4.66	5.66	11.66
648	0.61	0.92	0.22	6.39	4.09	0.78	15.89	4.71	9.26	9.14	7.63	12.05	4.12	4.12	8.84
650	1.44	2.18	0.52	15.04	9.64	1.84	37.48	11.08	21.80	21.51	31.42	49.66	10.97	9.69	20.81
652	0.88	1.33	0.31	9.20	5.69	1.12	22.87	6.78	13.33	13.15	10.98	30.37	6.71	5.92	12.73
654	0.01	0.02	0.01	0.26	0.10	0.03	0.66	0.11	0.38	0.38	0.31	0.50	0.19	0.10	0.21

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 3

To LATA #	334	336	338	937	938	From LATA #	344	346	348	350	352	354	356	358	360
546	10.74	41.98	10.81	3.77	3.14	938	344	346	348	350	352	354	356	358	360
548	6.10	23.85	6.14	2.14	1.79	938	344	346	348	350	352	354	356	358	360
550	5.19	20.26	5.22	1.82	1.52	938	344	346	348	350	352	354	356	358	360
552	97.78	382.11	98.40	34.28	28.62	938	344	346	348	350	352	354	356	358	360
554	18.51	42.33	18.63	6.49	5.42	938	344	346	348	350	352	354	356	358	360
556	10.97	42.85	11.04	3.85	3.21	938	344	346	348	350	352	354	356	358	360
558	17.44	68.16	17.55	6.12	5.11	938	344	346	348	350	352	354	356	358	360
560	99.27	387.92	99.90	34.81	29.06	938	344	346	348	350	352	354	356	358	360
562	11.98	46.83	12.06	4.20	3.51	938	344	346	348	350	352	354	356	358	360
564	11.79	46.08	16.95	4.13	4.93	938	344	346	348	350	352	354	356	358	360
566	27.11	151.35	38.98	9.51	11.34	938	344	346	348	350	352	354	356	358	360
568	10.59	41.40	10.66	3.71	3.10	938	344	346	348	350	352	354	356	358	360
570	4.27	16.68	4.29	1.50	1.25	938	344	346	348	350	352	354	356	358	360
572	4.05	22.59	5.82	1.42	1.69	938	344	346	348	350	352	354	356	358	360
574	19.43	75.93	19.55	6.81	5.69	938	344	346	348	350	352	354	356	358	360
576	8.06	31.51	8.11	2.83	2.36	938	344	346	348	350	352	354	356	358	360
578	10.25	40.04	10.31	3.59	3.00	938	344	346	348	350	352	354	356	358	360
580	66.16	224.84	67.90	20.17	19.37	938	344	346	348	350	352	354	356	358	360
582	8.86	34.61	8.91	3.11	2.59	938	344	346	348	350	352	354	356	358	360
584	31.67	123.77	31.87	11.10	9.27	938	344	346	348	350	352	354	356	358	360
586	21.83	85.30	21.97	7.65	6.39	938	344	346	348	350	352	354	356	358	360
588	18.89	73.81	19.01	6.62	5.53	938	344	346	348	350	352	354	356	358	360
590	18.58	72.62	18.70	6.52	5.44	938	344	346	348	350	352	354	356	358	360
592	8.16	31.90	8.21	2.86	2.39	938	344	346	348	350	352	354	356	358	360
594	17.37	67.87	17.48	6.09	5.08	938	344	346	348	350	352	354	356	358	360
596	25.13	90.22	25.29	8.81	8.46	938	344	346	348	350	352	354	356	358	360
598	9.50	37.13	9.56	3.33	2.78	938	344	346	348	350	352	354	356	358	360
600	10.99	42.95	11.06	3.85	3.20	938	344	346	348	350	352	354	356	358	360
602	8.79	34.34	8.84	3.08	2.57	938	344	346	348	350	352	354	356	358	360
604	5.33	20.84	5.37	1.87	1.56	938	344	346	348	350	352	354	356	358	360
606	13.49	52.73	13.58	4.73	3.95	938	344	346	348	350	352	354	356	358	360
608	2.80	10.93	2.81	0.98	0.82	938	344	346	348	350	352	354	356	358	360
610	8.93	34.89	8.98	3.13	2.61	938	344	346	348	350	352	354	356	358	360
612	42.78	238.80	43.50	15.00	17.89	938	344	346	348	350	352	354	356	358	360
614	11.74	65.54	11.88	4.12	4.91	938	344	346	348	350	352	354	356	358	360
616	28.12	109.88	28.30	9.86	8.23	938	344	346	348	350	352	354	356	358	360
618	24.30	94.95	24.45	8.52	7.11	938	344	346	348	350	352	354	356	358	360
620	38.80	151.62	39.05	13.60	11.36	938	344	346	348	350	352	354	356	358	360
622	12.66	49.48	12.74	4.44	3.71	938	344	346	348	350	352	354	356	358	360
624	15.56	60.81	15.66	5.46	4.56	938	344	346	348	350	352	354	356	358	360
626	35.55	138.93	35.78	12.47	10.41	938	344	346	348	350	352	354	356	358	360
628	51.30	200.49	51.63	17.99	15.02	938	344	346	348	350	352	354	356	358	360
630	18.79	73.44	18.91	6.59	5.50	938	344	346	348	350	352	354	356	358	360
632	6.43	25.11	6.47	2.25	1.88	938	344	346	348	350	352	354	356	358	360
634	9.05	35.36	9.11	3.17	2.65	938	344	346	348	350	352	354	356	358	360
636	102.07	398.87	102.72	20.45	29.88	938	344	346	348	350	352	354	356	358	360
638	23.97	93.66	24.12	8.40	7.02	938	344	346	348	350	352	354	356	358	360
640	16.69	65.22	16.80	5.85	4.89	938	344	346	348	350	352	354	356	358	360
642	212.23	829.37	213.59	74.41	62.13	938	344	346	348	350	352	354	356	358	360
644	36.75	143.61	36.98	12.89	10.76	938	344	346	348	350	352	354	356	358	360
646	7.76	30.34	7.81	2.72	2.27	938	344	346	348	350	352	354	356	358	360
648	5.89	23.01	5.93	2.06	1.72	938	344	346	348	350	352	354	356	358	360
650	13.86	53.16	13.95	4.86	4.06	938	344	346	348	350	352	354	356	358	360
652	8.48	33.12	8.53	2.97	2.48	938	344	346	348	350	352	354	356	358	360
654	0.14	0.54	0.14	0.05	0.04	938	344	346	348	350	352	354	356	358	360
656	10.71	41.96	10.81	3.77	3.14	938	344	346	348	350	352	354	356	358	360
658	11.74	41.96	11.88	4.12	4.91	938	344	346	348	350	352	354	356	358	360
660	28.12	109.88	28.30	9.86	8.23	938	344	346	348	350	352	354	356	358	360
662	24.30	94.95	24.45	8.52	7.11	938	344	346	348	350	352	354	356	358	360
664	38.80	151.62	39.05	13.60	11.36	938	344	346	348	350	352	354	356	358	360
666	12.66	49.48	12.74	4.44	3.71	938	344	346	348	350	352	354	356	358	360
668	15.56	60.81	15.66	5.46	4.56	938	344	346	348	350	352	354	356	358	360
670	35.55	138.93	35.78	12.47	10.41	938	344	346	348	350	352	354	356	358	360
672	51.30	200.49	51.63	17.99	15.02	938	344	346	348	350	352	354	356	358	360
674	18.79	73.44	18.91	6.59	5.50	938	344	346	348	350	352	354	356	358	360
676	6.43	25.11	6.47	2.25	1.88	938	344	346	348	350	352	354	356	358	360
678	9.05	35.36	9.11	3.17	2.65	938	344	346	348	350	352	354	356	358	360
680	102.07	398.87	102.72	20.45	29.88	938	344	346	348	350	352	354	356	358	360
682	23.97	93.66	24.12	8.40	7.02	938	344	346	348	350	352	354	356	358	360
684	16.69	65.22	16.80	5.85	4.89	938	344	346	348	350	352	354	356	358	360
686	212.23	829.37	213.59	74.41	62.13	938	344	346	348	350	352	354	356	358	360
688	36.75	143.61	36.98	12.89	10.76	938	344	346	348	350	352	354	356	358	360
690	7.76	30.34	7.81	2.72	2.27	938	344	346	348	350	352	354	356	358	360
692	5.89	23.01	5.93	2.06	1.72	938	344	346	348	350	352	354	356	358	360
694	13.86	53.16	13.95	4.86	4.06	938	344	346	348	350	352	354	356	358	360
696	8.48	33.12	8.53	2.97	2.48	938	344	346	348	350	352	354	356	358	360
698	0.14	0.54	0.14	0.05	0.04	938	344	346	348	350	352	354	356	358	360
699	10.71	41.96	10.81	3.77	3.14	938	344	346	348	350	352	354	356	358	360
700	11.74	41.96	11.88	4.12	4.91	938	344	346	348	350	352	354	356	358	360
701	28.12	109.88	28.30	9.86	8.23	938	344	346	348	350	352	354	356	358	360
702	24.30	94.95	24.45	8.52	7.11	938	344	346	348	350	352	354	356	358	360
703	38.80	151.62	39.05	13.60	11.36	938	344	346	348	350	352	354	356	358	360
704	12.66	49.48	12.74	4.44	3.71	938	344	346	348	350	352	354	356	358	360
705	15.56	60.81	15.66	5.46	4.56	938	344	346	348	350	352	354	356	358	360
706	35.55	138.93	35.78	12.47	10.41	938	344	346	348	350	352	354	356	358	360
707	51.30	200.4													

To LATA #	362	364	366	368	370	374	376	976	977	978	420	422	424	426	428	949
546	8.94	6.62	5.40	12.85	7.93	9.96	4.85	7.04	4.36	4.27	7.57	31.09	19.10	13.06	6.30	12.24
548	5.08	3.76	3.07	7.30	4.51	5.66	2.76	4.00	2.48	2.42	6.14	17.66	10.85	7.42	3.58	6.95
550	4.32	3.20	2.61	6.20	3.83	4.81	2.34	3.40	2.10	2.06	3.65	15.01	9.22	6.30	3.04	5.91
552	81.40	60.28	49.18	116.91	72.21	90.67	44.16	64.10	39.66	38.83	98.42	404.23	248.36	118.87	57.32	111.38
554	17.72	11.41	9.31	22.13	13.67	17.16	8.36	12.13	7.51	7.35	18.63	76.52	47.01	32.14	15.50	30.12
556	9.13	6.76	5.52	13.11	8.10	10.17	4.95	7.19	4.45	4.35	11.04	45.34	19.50	13.33	6.43	12.49
558	14.52	10.75	8.77	20.85	12.88	16.17	7.88	11.43	7.07	6.93	17.56	50.47	31.01	21.20	10.23	19.87
560	82.64	61.19	49.93	118.69	73.30	92.05	44.83	65.07	40.26	39.42	99.92	410.38	176.50	120.68	58.20	113.07
562	9.98	7.39	6.03	14.33	8.85	11.11	5.41	7.86	4.86	4.76	12.06	49.54	20.44	12.04	6.43	19.50
564	14.02	10.47	8.47	20.14	12.44	15.62	7.61	11.04	6.83	6.69	11.87	48.75	29.95	20.48	9.88	19.19
566	32.24	23.88	19.48	46.31	28.60	35.91	17.49	25.39	15.71	15.38	27.29	112.08	68.86	47.08	22.71	44.11
568	12.60	6.53	5.33	12.67	7.82	9.82	4.78	6.94	4.30	4.21	10.66	43.80	26.91	18.40	7.50	17.24
570	3.55	2.63	2.15	5.10	3.15	3.96	1.93	2.80	1.73	1.69	4.30	17.64	7.59	5.19	2.50	4.86
572	14.07	11.98	9.77	23.23	14.35	18.02	8.78	12.74	7.88	7.72	17.01	69.85	42.92	29.34	3.39	6.58
574	6.71	5.72	4.66	11.09	6.85	8.60	4.19	5.29	3.76	3.20	8.12	33.34	20.48	9.80	4.73	9.18
576	8.53	7.26	5.93	14.09	8.70	10.93	5.32	6.72	4.78	4.07	10.31	42.36	26.03	12.46	6.01	11.67
578	47.90	40.79	33.28	79.11	48.86	61.36	29.88	43.37	26.83	22.85	57.91	237.86	146.14	99.72	33.73	65.54
580	7.37	6.28	5.12	12.18	7.52	9.45	4.60	6.68	4.13	3.52	8.92	36.62	22.50	10.77	5.19	10.09
582	26.37	19.52	15.93	37.87	23.39	29.37	21.77	20.76	19.55	12.58	27.72	113.85	69.95	47.83	23.06	44.81
584	18.17	20.48	16.71	39.71	24.53	30.80	15.00	21.77	13.47	8.67	19.10	78.47	48.21	32.96	15.90	30.88
586	15.72	17.72	14.46	34.37	13.95	26.65	12.98	12.38	11.66	7.50	16.53	67.90	41.72	28.53	13.76	26.73
588	15.47	13.17	9.35	22.22	13.72	17.23	8.39	12.18	7.54	7.38	13.09	53.78	33.04	22.59	10.89	21.17
590	5.03	5.03	4.11	9.76	6.03	7.57	3.69	5.35	3.31	3.24	5.75	23.62	14.51	9.92	4.79	9.30
592	12.31	10.05	8.05	23.88	14.75	18.52	9.02	11.38	8.10	6.90	17.48	50.26	30.88	21.11	10.18	19.78
594	24.06	17.82	14.54	34.56	21.34	26.80	13.05	18.95	11.22	11.48	25.30	103.90	63.84	30.55	14.73	28.63
596	7.91	6.74	5.50	13.07	7.02	10.13	4.94	6.23	4.43	3.77	9.56	27.50	16.90	11.55	5.57	10.82
598	10.52	7.79	6.36	15.11	9.33	11.72	5.71	8.29	5.13	5.02	11.06	45.44	27.92	13.36	6.44	12.52
600	7.32	5.42	4.42	10.51	6.49	8.15	3.97	5.76	3.86	3.49	8.85	36.33	22.32	15.26	7.36	14.30
602	4.44	4.70	2.68	6.38	3.94	4.94	3.44	3.50	3.09	2.12	5.37	22.04	13.54	9.26	4.17	8.68
604	11.23	8.32	6.79	16.14	9.97	12.51	6.09	8.85	5.47	5.36	13.58	55.79	34.28	13.39	6.46	12.55
606	1.72	1.72	1.41	3.34	2.06	2.59	1.26	1.83	1.13	1.11	2.81	6.61	4.06	2.77	1.34	2.60
608	10.62	7.86	6.41	15.25	9.42	11.83	5.76	8.36	5.17	5.06	8.99	36.90	22.67	15.50	7.48	14.53
610	50.87	37.67	30.74	73.07	45.13	56.67	27.67	40.06	24.78	24.27	43.06	176.84	108.65	74.29	35.83	69.61
612	13.96	10.34	8.44	20.05	12.39	15.55	7.57	10.99	6.80	6.66	11.82	48.54	29.82	20.39	9.83	19.10
614	23.41	17.33	14.14	33.62	20.76	28.07	12.70	18.43	11.40	11.17	28.30	116.24	71.42	48.83	23.55	45.75
616	28.90	14.98	12.22	29.05	17.94	32.19	15.68	15.93	14.08	9.65	24.46	100.45	61.71	42.20	20.35	39.54
618	32.30	23.92	19.52	46.39	28.65	35.98	17.52	25.43	15.74	15.41	39.05	160.40	98.55	67.38	32.49	63.13
620	10.54	7.80	6.37	15.14	9.35	11.74	5.72	8.30	5.13	5.03	12.74	52.34	32.16	21.99	10.60	20.60
622	12.95	9.59	7.83	18.61	11.49	14.43	7.03	10.20	6.31	6.18	8.95	36.76	22.59	15.44	7.45	14.47
624	29.60	21.92	17.88	42.51	26.25	32.97	15.06	23.30	14.42	14.12	20.45	83.98	51.60	35.28	17.01	33.05
626	42.71	31.63	25.81	61.34	37.69	47.57	23.17	33.63	20.81	20.37	29.51	121.20	74.46	50.91	24.55	47.70
628	15.64	11.58	9.45	22.47	13.88	17.43	8.49	12.32	7.62	7.46	18.91	44.39	27.27	18.65	8.99	17.47
630	5.35	3.96	3.23	7.68	4.75	5.96	2.90	4.21	2.61	2.55	3.70	15.18	9.33	6.38	3.08	5.98
632	7.53	5.58	4.55	10.82	6.68	8.39	4.09	5.93	3.67	3.59	9.11	37.41	22.98	8.98	4.33	8.41
634	84.97	62.92	51.34	122.04	75.37	94.65	46.10	66.91	41.40	40.53	58.71	241.12	148.14	101.29	48.85	94.91
636	6.59	4.88	3.98	9.47	5.85	7.34	3.58	5.19	3.21	3.14	4.56	18.71	11.49	7.86	3.79	7.36
638	19.95	14.77	12.06	28.66	17.20	22.22	10.82	15.71	9.72	9.52	13.79	56.62	34.79	23.79	11.47	22.29
640	13.89	10.29	8.40	19.96	12.32	15.48	7.54	10.94	6.77	6.63	9.60	39.43	24.22	16.56	7.99	15.52
642	176.68	130.83	106.75	253.76	156.72	196.80	95.85	139.12	86.07	84.28	122.07	501.36	308.04	210.62	101.57	197.34
644	30.59	22.65	18.49	43.94	27.14	34.08	16.60	24.09	14.90	14.59	36.99	86.82	53.34	36.47	17.59	34.17
646	4.79	3.90	3.20	7.20	4.35	5.46	2.66	5.09	3.15	3.08	4.17	18.34	11.27	7.22	5.72	7.22
648	4.90	3.63	2.96	7.04	4.35	5.46	2.66	5.09	3.15	3.08	4.17	18.34	11.27	7.22	5.72	7.22
650	11.54	8.54	6.97	16.57	10.23	12.85	6.26	9.08	5.62	5.50	7.97	32.74	20.12	13.75	6.63	12.89
652	7.06	5.22	4.26	10.13	6.26	7.86	3.83	5.56	3.44	3.37	4.87	20.02	12.30	8.41	4.06	7.88
654	0.12	0.09	0.07	0.17	0.10	0.13	0.06	0.09	0.06	0.06	0.14	0.33	0.20	0.14	0.07	0.13

EXHIBIT 5.5 LATR-IO-LATA TRAFFIC MATRIX, Part 3

To LATA *	951	430	432	434	436	438	440	442	444	446	448	450	452	454	456	458
546	14.78	15.15	9.57	11.92	7.95	86.21	11.55	7.76	10.80	6.30	12.80	5.01	19.14	12.13	6.05	
548	8.39	12.30	5.44	9.68	4.52	48.98	6.56	6.30	8.76	6.73	7.27	4.06	10.87	9.84	3.44	
550	7.13	7.31	4.62	5.75	3.84	41.61	5.57	3.74	7.44	5.72	6.18	3.45	9.24	5.85	2.92	
552	134.49	197.00	124.45	155.02	103.34	784.69	150.17	100.87	140.37	107.86	116.52	65.11	248.87	157.69	78.66	
554	36.37	37.29	23.56	29.34	19.56	148.53	28.43	19.09	26.57	20.42	25.37	12.33	47.11	29.85	14.89	
556	15.08	22.09	9.77	17.39	8.11	88.01	16.84	11.31	15.74	12.10	13.07	7.30	27.91	17.69	8.82	
558	23.99	35.14	15.54	19.36	12.90	139.97	26.79	17.99	25.04	19.24	20.79	11.61	44.39	28.13	9.82	
560	136.53	200.00	126.35	157.38	104.92	796.63	152.46	102.40	142.51	109.50	136.04	66.10	252.66	160.09	79.85	
562	16.48	24.14	15.25	19.00	12.67	96.17	18.40	12.36	17.20	13.22	16.42	7.98	30.50	19.33	9.64	
564	23.17	23.76	15.01	18.70	12.46	135.19	18.11	12.16	24.18	18.58	20.08	11.22	42.88	27.17	9.49	
566	53.27	54.62	34.51	42.98	28.65	310.81	41.64	27.97	55.60	42.72	46.15	25.79	69.00	62.46	21.81	
568	20.82	21.34	13.48	16.80	11.20	121.46	16.27	10.93	21.73	16.69	18.04	10.08	26.96	24.41	3.43	
570	5.87	6.60	5.43	6.77	4.51	34.25	6.55	4.40	6.13	4.71	5.09	2.84	10.86	6.88	3.43	
571	7.95	8.15	5.15	6.42	4.28	46.39	6.22	4.17	8.30	6.38	6.89	3.85	10.30	6.53	3.26	
572	33.20	34.04	21.51	26.79	12.50	135.59	18.16	17.43	24.26	18.64	20.14	7.88	30.10	19.07	9.51	
573	11.09	16.25	7.18	6.95	5.97	64.71	6.67	5.82	8.10	6.23	6.73	3.76	14.37	9.10	4.54	
574	14.09	20.64	9.13	11.37	7.58	82.23	11.02	7.40	10.30	7.91	8.55	4.78	18.26	11.57	5.77	
575	79.14	115.92	51.26	91.22	42.57	461.73	61.86	59.35	57.82	63.47	48.00	26.82	102.51	64.95	32.40	
576	12.18	17.85	7.89	9.83	6.55	71.08	9.52	9.14	8.90	9.77	10.56	4.13	15.78	10.00	4.99	
577	32.41	35.05	35.05	43.66	29.11	221.01	42.30	28.41	39.54	30.38	32.82	18.34	49.07	31.09	15.51	
578	37.29	38.24	24.16	30.09	20.06	152.32	29.15	19.58	27.25	20.94	22.62	12.64	48.31	30.61	15.27	
579	32.27	33.09	20.91	26.04	17.36	131.81	25.23	16.94	23.58	18.12	19.57	10.94	41.80	26.49	9.25	
580	25.56	26.21	16.56	20.62	13.75	104.39	19.98	13.42	18.67	14.35	15.50	8.66	33.11	20.98	10.46	
581	11.23	11.51	7.27	9.06	6.04	45.85	8.78	5.89	8.20	6.30	6.81	3.80	14.54	9.22	4.60	
582	23.89	34.99	15.47	19.27	12.85	139.38	18.67	12.54	17.45	13.41	14.49	8.10	30.94	19.61	9.78	
583	34.57	50.64	22.39	39.65	18.59	201.70	27.02	25.93	36.08	27.72	29.95	16.74	44.78	28.37	14.15	
584	13.07	19.15	8.47	10.55	7.03	76.26	10.22	6.86	9.55	10.48	11.32	4.43	16.93	10.73	5.35	
585	15.12	22.14	9.79	17.43	8.13	88.21	11.82	11.34	15.78	12.12	13.10	7.32	19.58	12.41	6.19	
586	17.27	17.71	11.19	13.93	9.29	70.52	13.50	9.07	12.62	9.69	10.47	5.85	22.37	14.17	4.04	
587	10.48	10.74	6.79	8.45	5.64	42.79	8.19	5.50	7.65	5.88	6.35	3.55	13.57	8.60	4.29	
588	15.15	27.19	9.81	21.39	8.15	108.30	11.84	13.32	19.37	14.89	13.92	8.99	19.63	12.44	6.20	
589	3.14	5.63	2.03	2.53	1.69	22.44	2.45	1.65	2.29	3.08	3.33	1.06	4.07	2.58	1.29	
590	17.54	17.99	11.36	14.15	9.43	71.64	13.71	9.21	12.82	9.85	10.64	5.94	22.72	14.40	7.18	
591	84.05	86.18	54.45	67.82	45.21	343.28	65.70	44.13	61.41	47.18	50.98	26.48	108.87	68.99	34.41	
592	23.07	23.65	14.94	18.61	12.41	94.22	18.03	12.11	16.85	12.95	13.99	7.82	29.88	18.93	9.44	
593	55.25	56.65	35.79	44.58	29.72	225.65	43.18	29.01	40.37	31.02	33.51	18.72	71.57	45.35	22.62	
594	47.74	48.95	30.93	38.52	25.68	194.99	37.32	25.06	34.88	28.80	28.96	16.18	61.84	39.18	19.55	
595	26.23	28.17	16.11	20.07	13.38	101.61	19.45	13.06	18.18	13.97	15.09	8.43	32.22	20.42	10.18	
596	24.88	25.51	16.11	20.07	13.38	101.61	19.45	13.06	18.18	13.97	15.09	8.43	32.22	20.42	10.18	
597	17.47	17.92	11.32	14.10	9.40	71.36	13.66	9.17	12.77	9.81	10.60	5.92	22.63	14.34	7.15	
598	39.92	40.93	25.86	32.21	21.47	163.03	31.20	20.96	29.16	22.41	24.21	13.53	51.71	32.76	16.34	
599	57.60	59.07	37.31	46.48	30.98	235.27	45.03	30.24	42.09	32.34	34.94	19.52	74.62	47.28	23.58	
600	21.10	37.86	13.67	17.02	11.35	150.80	16.49	11.08	15.42	11.84	22.39	7.15	27.33	17.32	8.64	
601	7.21	7.40	4.67	5.82	3.88	51.57	5.64	3.79	5.27	4.05	7.66	2.45	9.35	5.92	2.95	
602	10.16	18.23	11.52	14.35	5.46	72.61	13.90	9.33	12.99	9.98	10.78	6.03	23.03	14.59	4.16	
603	114.60	117.51	74.24	92.47	61.64	468.06	89.58	60.17	83.73	64.34	69.51	38.84	148.45	94.06	46.92	
604	8.89	9.12	5.76	7.17	4.78	36.32	6.95	4.67	6.50	4.99	5.39	3.01	11.52	7.30	3.64	
605	26.91	27.59	17.43	21.71	14.48	109.91	21.03	14.13	19.66	15.11	16.32	9.12	34.86	22.09	11.02	
606	18.74	19.22	12.14	15.12	10.08	133.94	14.65	9.84	13.69	10.52	19.89	6.35	24.27	15.38	7.67	
607	238.29	244.34	154.36	192.27	128.18	1703.17	186.26	125.10	304.67	234.10	252.92	141.32	308.67	195.58	97.56	
608	41.26	74.04	26.73	33.29	22.20	294.92	32.25	21.66	52.76	40.54	43.79	24.47	53.45	33.87	16.89	
609	8.72	8.94	5.65	7.03	4.69	62.30	6.81	4.58	6.37	4.89	9.25	5.17	11.29	7.15	3.57	
610	6.61	6.73	4.28	5.33	3.56	27.00	5.17	3.47	4.83	3.71	4.01	2.24	8.56	5.43	2.71	
611	15.56	15.96	10.08	12.56	8.37	63.56	12.16	8.17	11.37	8.74	9.44	5.27	20.16	12.77	6.37	
612	9.52	9.76	6.16	7.68	5.12	38.87	7.44	5.00	6.95	5.34	10.10	3.22	12.33	7.81	3.90	
613	0.16	0.28	0.10	0.13	0.08	1.12	0.12	0.14	0.20	0.15	0.17	0.09	0.20	0.13	0.06	

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 3

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To LATA #	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
546	88.06	13.69	3.86	51.83	12.76	11.46	26.80	31.85	35.56	12.54	15.35	9.83	12.54	15.35	9.83	12.54	15.35	9.83	12.54	15.35	9.83
548	50.03	7.78	3.13	29.45	7.25	6.51	15.23	20.81	20.20	7.12	12.46	7.98	7.12	12.46	7.98	7.12	12.46	7.98	7.12	12.46	7.98
550	42.50	6.61	2.66	25.02	6.16	5.53	12.94	15.37	17.16	6.05	10.58	4.75	6.05	10.58	4.75	6.05	10.58	4.75	6.05	10.58	4.75
552	801.44	177.98	50.17	673.90	116.13	104.28	243.91	333.40	323.64	114.10	199.56	127.87	114.10	199.56	127.87	114.10	199.56	127.87	114.10	199.56	127.87
554	216.72	33.69	9.50	127.56	21.98	19.74	46.17	63.11	61.26	21.60	37.78	24.20	21.60	37.78	24.20	21.60	37.78	24.20	21.60	37.78	24.20
556	89.89	19.36	5.63	75.58	13.02	11.70	27.36	37.39	36.30	12.80	22.38	14.34	12.80	22.38	14.34	12.80	22.38	14.34	12.80	22.38	14.34
558	142.96	31.75	8.95	120.21	20.72	18.60	43.51	51.72	57.73	20.35	35.60	22.81	20.35	35.60	22.81	20.35	35.60	22.81	20.35	35.60	22.81
560	1162.35	180.68	50.94	684.16	117.90	105.87	247.63	338.48	328.57	115.83	202.60	129.82	115.83	202.60	129.82	115.83	202.60	129.82	115.83	202.60	129.82
562	140.32	21.81	6.15	82.59	14.23	12.78	29.89	40.86	39.56	13.98	24.46	15.67	13.98	24.46	15.67	13.98	24.46	15.67	13.98	24.46	15.67
564	138.08	30.66	8.64	116.11	20.01	17.97	29.42	49.95	55.76	19.66	34.38	15.42	19.66	34.38	15.42	19.66	34.38	15.42	19.66	34.38	15.42
566	317.45	49.35	19.87	266.93	41.31	46.00	96.61	114.83	128.19	45.19	79.04	35.45	45.19	79.04	35.45	45.19	79.04	35.45	45.19	79.04	35.45
568	124.05	27.55	7.77	104.31	12.58	11.30	26.43	44.87	50.09	17.66	21.62	13.85	17.66	21.62	13.85	17.66	21.62	13.85	17.66	21.62	13.85
570	34.98	7.77	2.19	29.41	5.07	4.55	10.65	14.55	14.12	4.98	8.71	5.58	4.98	8.71	5.58	4.98	8.71	5.58	4.98	8.71	5.58
572	47.38	7.37	2.97	27.89	6.87	6.17	10.09	17.14	19.13	6.75	11.80	5.29	6.75	11.80	5.29	6.75	11.80	5.29	6.75	11.80	5.29
574	138.49	21.53	6.07	81.51	20.07	18.02	42.15	50.10	55.92	19.72	34.48	22.10	19.72	34.48	22.10	19.72	34.48	22.10	19.72	34.48	22.10
576	66.09	10.27	2.90	38.90	9.58	8.60	20.11	23.91	26.69	9.41	16.46	10.54	9.41	16.46	10.54	9.41	16.46	10.54	9.41	16.46	10.54
578	83.99	13.06	3.68	49.44	12.17	10.93	25.56	30.38	33.92	11.96	20.91	13.40	11.96	20.91	13.40	11.96	20.91	13.40	11.96	20.91	13.40
580	471.59	73.31	20.67	277.58	68.34	61.36	143.53	170.59	190.44	67.14	117.43	75.24	67.14	117.43	75.24	67.14	117.43	75.24	67.14	117.43	75.24
582	72.60	11.29	3.18	42.73	10.52	9.45	22.10	26.26	29.32	10.34	18.08	11.58	10.34	18.08	11.58	10.34	18.08	11.58	10.34	18.08	11.58
584	225.73	35.09	14.13	132.86	37.62	33.78	68.70	93.90	91.16	32.14	56.21	36.01	32.14	56.21	36.01	32.14	56.21	36.01	32.14	56.21	36.01
586	155.57	24.18	9.74	91.57	25.92	23.28	54.45	64.72	72.25	22.15	38.74	24.82	22.15	38.74	24.82	22.15	38.74	24.82	22.15	38.74	24.82
588	134.62	20.93	8.43	79.24	22.43	20.14	47.12	56.00	62.52	19.17	33.52	21.48	19.17	33.52	21.48	19.17	33.52	21.48	19.17	33.52	21.48
590	152.32	23.68	6.67	89.65	22.07	19.82	46.36	55.10	61.51	15.18	27.93	17.01	15.18	27.93	17.01	15.18	27.93	17.01	15.18	27.93	17.01
592	66.91	10.40	2.93	39.38	9.69	8.71	14.25	24.20	28.91	6.67	11.66	7.47	6.67	11.66	7.47	6.67	11.66	7.47	6.67	11.66	7.47
594	142.35	22.13	6.24	83.79	20.63	18.52	43.32	51.49	57.49	20.27	35.45	22.71	20.27	35.45	22.71	20.27	35.45	22.71	20.27	35.45	22.71
596	206.00	32.02	12.90	121.25	29.85	26.81	62.70	74.52	83.19	29.33	51.30	32.87	29.33	51.30	32.87	29.33	51.30	32.87	29.33	51.30	32.87
598	77.89	12.11	3.41	45.84	11.29	10.13	23.70	28.17	31.45	11.09	19.39	12.43	11.09	19.39	12.43	11.09	19.39	12.43	11.09	19.39	12.43
600	90.09	14.00	5.64	53.03	13.05	11.72	27.42	32.59	36.38	12.83	22.43	14.37	12.83	22.43	14.37	12.83	22.43	14.37	12.83	22.43	14.37
602	58.80	9.14	4.51	34.61	10.44	9.37	17.94	26.06	27.09	10.25	17.94	11.49	10.25	17.94	11.49	10.25	17.94	11.49	10.25	17.94	11.49
604	35.68	9.70	2.74	36.75	6.33	5.69	13.30	15.81	17.65	6.22	10.88	6.97	6.22	10.88	6.97	6.22	10.88	6.97	6.22	10.88	6.97
606	90.29	14.04	6.92	53.15	16.03	14.39	33.66	40.01	44.67	15.75	27.54	17.65	15.75	27.54	17.65	15.75	27.54	17.65	15.75	27.54	17.65
608	18.71	2.91	0.82	11.01	3.32	2.98	6.98	8.29	9.26	3.26	5.71	3.66	3.26	5.71	3.66	3.26	5.71	3.66	3.26	5.71	3.66
610	104.53	16.25	4.58	61.52	10.60	9.52	22.27	26.47	29.55	10.42	18.22	11.67	10.42	18.22	11.67	10.42	18.22	11.67	10.42	18.22	11.67
612	500.88	77.86	21.95	294.82	72.58	65.62	106.71	181.19	141.59	49.91	87.30	55.94	49.91	87.30	55.94	49.91	87.30	55.94	49.91	87.30	55.94
614	137.47	21.37	6.02	80.92	19.92	18.52	29.29	49.73	58.86	13.70	23.96	15.35	13.70	23.96	15.35	13.70	23.96	15.35	13.70	23.96	15.35
616	188.14	51.18	14.43	193.79	33.40	29.99	70.14	83.37	93.07	32.81	57.39	36.77	32.81	57.39	36.77	32.81	57.39	36.77	32.81	57.39	36.77
618	284.50	44.23	12.47	167.46	28.86	25.91	60.61	69.32	80.42	28.35	49.59	31.77	28.35	49.59	31.77	28.35	49.59	31.77	28.35	49.59	31.77
620	454.31	70.62	19.91	267.41	46.08	41.38	96.79	115.04	128.42	45.27	79.19	50.74	45.27	79.19	50.74	45.27	79.19	50.74	45.27	79.19	50.74
622	148.25	23.05	6.50	87.26	15.04	13.50	31.58	37.54	41.91	14.77	25.84	16.56	14.77	25.84	16.56	14.77	25.84	16.56	14.77	25.84	16.56
624	104.12	16.19	4.56	61.29	18.48	16.60	22.18	46.14	51.51	10.38	18.15	11.63	10.38	18.15	11.63	10.38	18.15	11.63	10.38	18.15	11.63
626	237.87	36.98	10.42	140.01	42.22	37.92	50.68	105.41	117.67	34.71	41.46	26.57	34.71	41.46	26.57	34.71	41.46	26.57	34.71	41.46	26.57
628	343.27	53.36	15.04	202.05	60.93	54.72	73.13	152.11	169.81	34.21	59.83	38.34	34.21	59.83	38.34	34.21	59.83	38.34	34.21	59.83	38.34
630	125.73	19.55	5.51	74.01	22.32	20.04	46.88	55.72	62.20	21.93	38.35	24.57	21.93	38.35	24.57	21.93	38.35	24.57	21.93	38.35	24.57
632	43.00	6.68	1.88	25.31	7.63	6.85	16.03	19.05	21.27	7.50	13.11	4.80	7.50	13.11	4.80	7.50	13.11	4.80	7.50	13.11	4.80
634	60.54	9.41	4.64	32.36	10.75	9.65	22.57	26.83	29.95	10.56	18.47	11.83	10.56	18.47	11.83	10.56	18.47	11.83	10.56	18.47	11.83
636	682.94	106.16	29.93	401.98	121.23	108.86	145.49	302.63	337.84	68.06	119.04	76.27	68.06	119.04	76.27	68.06	119.04	76.27	68.06	119.04	76.27
638	52.99	8.24	2.32	31.19	9.41	8.45	19.76	23.48	26.21	5.28	9.24	5.92	5.28	9.24	5.92	5.28	9.24	5.92	5.28	9.24	5.92
640	160.36	24.93	7.03	94.39	28.47	25.56	59.79	71.06	79.33	15.98	27.95	17.91	15.98	27.95	17.91	15.98	27.95	17.91	15.98	27.95	17.91
642	111.67	17.36	4.89	65.73	19.82	17.60	41.63	49.49	55.24	19.48	34.06	12.47	19.48	34.06	12.47	19.48	34.06	12.47	19.48	34.06	12.47
644	1420.04	220.74	63.83	835.83	252.07	226.35	529.42	629.26	702.47	247.65	433.15	158.59	247.65	433.15	158.59	247.65	433.15	158.59	247.65	433.15	158.59
646	245.89	38.22	18.86	144.73	43.65	39.19	91.67	108.96	121.64	42.88	75.00	48.06	42.88	75.00	48.06	42.88	75.00	48.06	42.88	75.00	48.06
648	51.94	8.07	2.28	30.57	9.22	8.28	19.37	23.02	25.70	9.06	15.84	5.80	9.06	15.84	5.80	9.06	15.84	5.80	9.06	15.84	5.80
650	39.39	6.12	1.73	23.19	6.99	6.39	8.39	17.46	19.49	3.93	6.87	4.40	3.93	6.87	4.40	3.93	6.87	4.40	3.93	6.87	4.40
652	92.73	14.42	4.06	54.58	16.46	14.78	34.57	41.09	45.87	16.17	15.16	10.36	16.17	15.16	10.36	16.17	15.16	10.36	16.17	15.16	10.36
654	56.71	8.62	2.4																		

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 3

To LATA #	482	484	486	488	490	492	520	521	522	524	526	528	530	532	534	536
From LATA #	482	484	486	488	490	492	520	521	522	524	526	528	530	532	534	536
546	42.28	6.11	27.23	22.10	17.98	15.78	84.91	4.81	20.10	62.78	9.05	32.95	7.46	35.84	22.35	62.90
548	27.62	3.47	17.79	14.44	10.21	10.31	48.24	3.14	11.42	35.67	5.14	21.53	4.87	20.36	12.70	54.38
550	20.41	2.95	15.11	12.27	8.68	7.62	40.99	2.32	9.70	26.35	4.37	18.29	4.17	17.30	9.38	50.36
552	442.49	63.94	433.66	231.32	188.15	165.18	772.86	50.32	182.92	571.43	82.41	344.87	78.05	326.22	203.44	871.22
554	83.76	12.10	82.09	43.79	35.62	31.27	168.24	9.52	34.53	108.17	23.74	65.28	22.48	61.75	38.51	108.37
556	49.63	7.17	31.96	25.94	21.10	18.53	86.68	4.91	20.52	55.73	9.24	38.68	8.75	36.59	19.84	64.21
558	78.93	9.92	50.83	41.26	33.56	29.47	137.86	7.81	28.37	88.64	14.70	61.52	13.92	50.60	31.56	102.13
560	449.23	64.91	289.32	234.84	191.02	167.70	784.63	44.42	161.48	504.46	83.67	350.12	79.24	287.99	179.60	561.23
562	54.23	7.84	53.15	33.14	23.06	30.81	94.72	5.36	22.42	60.90	10.10	42.27	9.57	34.77	21.68	70.17
564	66.29	9.58	49.10	39.85	32.42	28.46	133.16	7.54	27.40	85.61	12.35	51.67	11.69	48.87	30.48	85.77
566	152.41	22.02	112.88	64.81	64.81	65.43	306.12	17.33	63.00	196.82	32.64	118.78	26.88	112.36	70.07	226.77
568	59.56	8.61	44.11	35.80	25.32	25.57	119.63	6.77	24.62	76.91	11.09	46.42	10.51	43.91	27.38	77.06
570	19.31	2.79	18.93	10.10	8.21	7.21	33.73	1.91	7.98	21.69	3.60	15.05	3.41	14.24	7.72	24.99
572	22.75	3.29	16.85	11.89	9.67	8.49	45.69	2.59	9.40	29.38	4.87	17.73	4.01	19.29	10.46	33.85
574	66.49	9.61	42.82	34.76	28.27	24.82	153.58	8.69	31.61	98.74	12.38	51.82	11.73	49.02	35.15	86.03
576	31.73	3.21	20.44	11.61	9.44	8.29	63.74	3.61	13.12	40.98	5.91	24.73	5.60	23.39	14.59	41.05
578	40.32	4.08	25.97	14.76	12.00	10.54	80.99	5.27	16.67	59.88	7.51	31.43	7.11	29.73	21.32	52.17
580	226.41	22.90	145.82	82.85	67.39	84.52	522.99	29.61	93.60	336.25	42.17	176.46	39.94	166.92	119.71	292.94
582	34.86	5.04	22.45	18.22	14.82	13.01	80.51	4.56	16.57	51.76	7.47	27.17	6.15	29.55	18.43	51.86
584	108.37	15.66	69.80	56.65	46.08	40.46	250.33	14.17	51.52	244.92	23.21	97.13	19.12	91.88	57.30	161.25
586	74.69	10.79	48.10	39.05	31.76	27.88	262.54	9.77	35.51	110.92	15.00	66.94	13.17	63.32	39.49	95.64
588	64.63	9.34	41.63	33.79	27.48	24.13	149.30	8.45	30.73	95.99	13.84	57.93	11.40	54.80	34.17	83.63
590	51.19	7.40	47.10	26.76	21.77	19.11	146.89	8.32	30.23	94.44	13.62	56.99	12.90	53.91	33.62	94.62
592	22.49	3.25	14.48	11.75	9.56	8.39	64.52	3.65	13.28	41.48	5.98	25.03	5.67	23.68	14.77	41.56
594	68.34	9.88	44.02	35.73	29.06	25.51	157.87	8.94	32.49	101.50	12.73	53.27	12.06	57.94	36.13	88.43
596	31.73	3.21	20.44	11.61	9.44	8.29	63.74	3.61	13.12	40.98	5.91	24.73	5.60	23.39	14.59	41.05
598	40.32	4.08	25.97	14.76	12.00	10.54	80.99	5.27	16.67	59.88	7.51	31.43	7.11	29.73	21.32	52.17
600	226.41	22.90	145.82	82.85	67.39	84.52	522.99	29.61	93.60	336.25	42.17	176.46	39.94	166.92	119.71	292.94
602	34.86	5.04	22.45	18.22	14.82	13.01	80.51	4.56	16.57	51.76	7.47	27.17	6.15	29.55	18.43	51.86
604	108.37	15.66	69.80	56.65	46.08	40.46	250.33	14.17	51.52	244.92	23.21	97.13	19.12	91.88	57.30	161.25
606	74.69	10.79	48.10	39.05	31.76	27.88	262.54	9.77	35.51	110.92	15.00	66.94	13.17	63.32	39.49	95.64
608	64.63	9.34	41.63	33.79	27.48	24.13	149.30	8.45	30.73	95.99	13.84	57.93	11.40	54.80	34.17	83.63
610	51.19	7.40	47.10	26.76	21.77	19.11	146.89	8.32	30.23	94.44	13.62	56.99	12.90	53.91	33.62	94.62
612	22.49	3.25	14.48	11.75	9.56	8.39	64.52	3.65	13.28	41.48	5.98	25.03	5.67	23.68	14.77	41.56
614	68.34	9.88	44.02	35.73	29.06	25.51	157.87	8.94	32.49	101.50	12.73	53.27	12.06	57.94	36.13	88.43
616	31.73	3.21	20.44	11.61	9.44	8.29	63.74	3.61	13.12	40.98	5.91	24.73	5.60	23.39	14.59	41.05
618	40.32	4.08	25.97	14.76	12.00	10.54	80.99	5.27	16.67	59.88	7.51	31.43	7.11	29.73	21.32	52.17
620	226.41	22.90	145.82	82.85	67.39	84.52	522.99	29.61	93.60	336.25	42.17	176.46	39.94	166.92	119.71	292.94
622	34.86	5.04	22.45	18.22	14.82	13.01	80.51	4.56	16.57	51.76	7.47	27.17	6.15	29.55	18.43	51.86
624	108.37	15.66	69.80	56.65	46.08	40.46	250.33	14.17	51.52	244.92	23.21	97.13	19.12	91.88	57.30	161.25
626	74.69	10.79	48.10	39.05	31.76	27.88	262.54	9.77	35.51	110.92	15.00	66.94	13.17	63.32	39.49	95.64
628	64.63	9.34	41.63	33.79	27.48	24.13	149.30	8.45	30.73	95.99	13.84	57.93	11.40	54.80	34.17	83.63
630	51.19	7.40	47.10	26.76	21.77	19.11	146.89	8.32	30.23	94.44	13.62	56.99	12.90	53.91	33.62	94.62
632	22.49	3.25	14.48	11.75	9.56	8.39	64.52	3.65	13.28	41.48	5.98	25.03	5.67	23.68	14.77	41.56
634	68.34	9.88	44.02	35.73	29.06	25.51	157.87	8.94	32.49	101.50	12.73	53.27	12.06	57.94	36.13	88.43
636	31.73	3.21	20.44	11.61	9.44	8.29	63.74	3.61	13.12	40.98	5.91	24.73	5.60	23.39	14.59	41.05
638	40.32	4.08	25.97	14.76	12.00	10.54	80.99	5.27	16.67	59.88	7.51	31.43	7.11	29.73	21.32	52.17
640	226.41	22.90	145.82	82.85	67.39	84.52	522.99	29.61	93.60	336.25	42.17	176.46	39.94	166.92	119.71	292.94
642	34.86	5.04	22.45	18.22	14.82	13.01	80.51	4.56	16.57	51.76	7.47	27.17	6.15	29.55	18.43	51.86
644	108.37	15.66	69.80	56.65	46.08	40.46	250.33	14.17	51.52	244.92	23.21	97.13	19.12	91.88	57.30	161.25
646	74.69	10.79	48.10	39.05	31.76	27.88	262.54	9.77	35.51	110.92	15.00	66.94	13.17	63.32	39.49	95.64
648	64.63	9.34	41.63	33.79	27.48	24.13	149.30	8.45	30.73	95.99	13.84	57.93	11.40	54.80	34.17	83.63
650	51.19	7.40	47.10	26.76	21.77	19.11	146.89	8.32	30.23	94.44	13.62	56.99	12.90	53.91	33.62	94.62
652	22.49	3.25	14.48	11.75	9.56	8.39	64.52	3.65	13.28	41.48	5.98	25.03	5.67	23.68	14.77	41.56
654	68.34	9.88	44.02	35.73	29.06	25.51	157.87	8.94	32.49	101.50	12.73	53.27	12.06	57.94	36.13	88.43
656	31.73	3.21	20.44	11.61	9.44	8.29	63.74	3.61	13.12	40.98	5.91	24.73	5.60	23.39	14.59	41.05
658	40.32	4.08	25.97	14.76	12.00	10.54	80.99	5.27	16.67	59.88	7.51	31.43	7.11	29.73	21.32	52.17
660	226.41	22.90	145.82	82.85	67.39	84.52	522.99	29.61	93.60	336.25	42.17	176.46	39.94	166.92	119.71	292.94
662	34.86	5.04	22.45	18.22	14.82	13.01	80.51	4.56	16.57	51.76	7.47	27.17	6.15	29.55	18.43	51.86
664	108.37	15.66	69.80	56.65	46.08	40.46	250.33	14.17	51.52	244.92	23.21	97.13	19.12	91.88	57.30	161.25
666	74.69	10.79	48.10	39.05	31.76	27.88	262.54	9.77	35.51	110.92	15.00	66.94	13.17	63.32	39.49	95.64
668	64.63	9.34	41.63	33.79	27.48	24.13	149.30	8.45	30.73	95.99	13.84	57.93	11.40	54.80	34.17	83.63
670	51.19	7.40	47.10	26.76	21.77	19.11	146.89	8.32	30.23	94.44	13.62	56.99	12.90	53.91	33.62	94.62
672	22.49	3.25	14.48	11.75	9.56	8.39	64.52	3.65	13.28	41.48	5.98	25.03	5.67	23.68	14.77	41.56
674	68.34	9.88	44.02	35.73	29.06	25.51	157.87	8.94	32.49	101.50	12.73	53.27	12.06	57.94	36.13	88.43
676	31.73	3.21	20.44	11.61	9.44	8.29	63.74	3.61	13.12	40.98	5.91	24.73	5.60	23.39	14.59	41.05
678	40.32	4.08	25.97	14.76	12.00	10.54	80.99	5.27	16.67	59.88	7.51	31.43	7.11	29.73	21.32	52.17
680	226.41	22.90	145.82	82.85	67.39	84.52	522.99	29.61	93.60	336.25	42.17	176.46	39.94	166.92	119.71	292.94
682	34.86	5.04	22.45	18.22	14.82	13.01	80.51	4.56	16.57	51.76	7.47	27.17	6.15	29.55	18.43	51.86
684	108.37															

EXHIBIT 5.5 LATIA-TO-LATA TRAFFIC MATRIX, Part 3

To LATA #	538	540	542	544	546	548	550	552	554	556	558	560	562	564	566	568
546	38.49	19.16	16.07	14.20	0.00	6.27	7.23	132.91	23.55	14.67	24.09	121.41	14.04	21.36	55.44	19.99
548	21.87	10.88	9.13	8.07	8.48	0.00	6.25	114.91	13.38	12.68	13.68	79.33	9.17	13.96	32.06	11.35
550	18.58	9.25	11.80	6.86	7.21	0.00	6.08	97.62	11.37	10.78	17.69	67.39	7.79	11.86	27.24	11.09
552	350.32	151.61	146.22	84.95	135.87	114.58	100.13	0.00	326.12	203.20	333.60	1270.82	146.95	223.60	513.66	209.19
554	66.31	28.70	27.68	16.08	25.72	14.25	12.46	348.46	0.00	38.46	41.50	366.06	42.33	42.33	97.23	39.60
556	39.29	17.00	16.40	9.53	15.24	12.85	11.23	206.46	36.58	0.00	37.41	216.89	25.08	25.08	87.67	23.46
558	62.49	27.05	26.08	15.15	24.24	13.43	17.86	328.37	38.23	36.25	0.00	344.96	26.21	60.70	139.43	37.32
560	355.65	153.92	148.45	86.24	119.95	76.44	66.80	1228.12	331.09	206.29	338.68	0.00	227.02	345.44	793.55	212.38
562	42.93	18.58	17.92	9.05	14.48	9.23	8.06	148.26	39.97	24.90	26.87	237.01	0.00	27.40	62.95	25.64
564	52.48	26.12	25.19	14.64	20.36	12.97	11.34	208.42	36.92	23.01	57.48	333.19	25.32	0.00	134.67	54.85
566	138.76	60.05	57.92	33.65	53.82	29.83	26.06	479.16	84.89	80.49	132.14	785.99	58.21	134.78	0.00	82.86
568	47.15	23.47	22.63	11.43	18.29	10.13	10.16	187.24	33.17	20.67	33.53	196.70	22.75	0.00	79.51	9.13
570	15.29	6.62	6.38	3.71	5.93	3.29	2.87	80.34	14.23	8.87	14.56	84.40	9.76	9.76	34.11	0.00
581	20.71	10.31	13.16	7.64	8.03	4.45	5.92	71.52	12.67	7.89	19.72	75.13	8.69	13.22	45.21	12.37
620	52.64	18.34	21.97	12.76	20.42	11.31	9.89	181.77	32.20	20.06	32.94	190.95	22.08	23.52	54.03	22.00
624	25.12	8.75	7.34	4.26	9.74	5.40	3.30	86.75	15.37	6.70	11.00	63.79	7.38	11.22	25.78	10.50
626	31.92	11.12	9.33	7.74	12.38	6.86	6.00	110.24	19.53	12.17	13.98	81.06	9.37	14.26	32.77	13.34
628	179.25	62.45	52.37	43.47	69.52	38.53	33.67	618.98	109.66	68.33	78.52	455.18	52.63	60.09	183.98	74.93
630	31.73	13.73	11.52	6.69	10.70	5.93	5.18	95.29	16.88	10.52	17.27	100.10	11.58	12.33	40.46	11.53
632	98.67	42.70	35.81	20.80	33.28	18.44	16.12	296.28	52.49	32.70	53.69	311.25	35.99	54.76	125.80	35.86
634	68.00	20.60	24.68	14.34	22.93	12.71	11.11	204.19	36.17	22.54	37.00	214.51	24.80	26.42	85.70	24.72
635	58.85	17.83	21.36	12.41	19.85	11.00	9.61	178.70	31.30	19.50	32.02	185.63	21.46	22.86	75.03	21.39
636	57.89	20.17	16.92	14.04	22.45	12.44	10.87	199.92	35.42	15.45	25.36	147.01	17.00	25.87	59.42	24.20
638	25.43	8.86	7.43	6.17	9.86	5.47	4.78	87.82	10.89	6.79	11.14	64.58	7.47	11.36	25.10	10.63
640	54.11	26.93	22.58	13.12	20.99	11.63	10.16	186.84	33.10	20.62	33.86	196.28	22.70	24.18	79.34	22.62
644	90.05	38.97	32.68	18.99	30.37	16.83	14.71	270.39	47.90	29.85	49.00	284.05	32.85	49.98	114.81	32.73
646	34.04	14.73	12.36	7.18	13.20	7.32	5.56	102.23	18.11	11.28	18.53	107.39	12.42	18.90	43.41	12.37
658	39.38	17.04	14.29	8.30	15.27	8.46	6.93	118.24	20.95	13.05	21.43	124.22	14.36	21.86	50.21	20.45
648	27.38	13.63	11.43	6.64	15.17	5.88	5.14	94.54	16.75	10.44	17.13	99.32	11.48	17.48	40.14	16.35
650	23.73	11.81	6.93	5.75	9.20	5.10	3.12	57.36	10.16	6.33	10.39	60.26	6.97	10.60	24.36	9.92
652	42.04	29.89	17.55	10.19	23.29	9.04	7.90	145.18	25.72	16.03	26.31	152.51	17.64	26.83	61.64	25.11
660	8.71	4.34	3.64	2.11	3.58	1.87	1.64	30.08	5.53	3.32	5.45	31.60	3.65	5.56	12.77	5.20
654	39.73	19.77	16.58	9.63	15.41	8.54	7.46	137.20	24.31	15.14	24.86	100.89	11.67	17.75	40.78	16.61
656	190.38	94.75	79.47	53.09	84.91	40.92	35.76	657.42	116.47	72.57	119.14	690.63	79.86	121.52	273.15	79.58
658	52.25	29.91	25.08	14.57	23.31	12.92	9.81	180.44	31.97	19.92	32.70	189.55	21.92	33.35	76.62	31.20
660	125.14	62.28	52.24	30.35	48.54	26.90	23.51	432.14	53.59	33.39	54.82	317.78	36.75	55.91	128.44	52.31
664	108.14	61.89	51.91	30.16	48.23	26.73	23.36	373.42	66.15	41.22	67.67	392.28	45.36	69.02	158.56	64.57
666	172.68	98.84	72.08	41.87	66.97	37.12	32.43	596.29	73.95	65.82	108.06	438.49	50.70	110.22	253.19	103.12
668	56.35	32.25	23.52	13.66	21.85	12.11	10.58	194.58	34.47	21.48	35.26	204.41	16.55	35.97	82.62	33.65
670	48.46	24.13	20.24	11.76	18.80	10.42	9.11	167.41	29.66	18.48	30.34	175.87	20.34	30.94	71.08	28.95
672	110.76	55.13	46.23	26.86	42.96	23.81	20.80	382.46	67.76	42.22	69.31	401.79	46.46	70.69	162.40	66.14
674	159.83	79.55	66.72	38.76	61.99	34.36	30.02	551.93	97.78	60.92	100.02	579.82	67.05	102.02	234.36	95.45
676	58.54	29.14	24.44	14.20	22.71	12.58	11.00	202.16	35.81	22.32	36.64	212.38	24.56	37.37	85.84	34.96
720	20.02	14.23	8.36	4.85	7.76	4.30	3.76	69.13	12.25	7.63	12.53	72.62	8.40	12.78	29.35	11.95
721	28.19	20.04	16.81	9.77	15.82	8.66	7.56	97.34	17.25	10.75	17.64	102.26	11.82	17.99	41.33	16.83
722	317.99	226.10	132.73	77.11	123.33	68.35	59.73	1096.07	194.53	121.21	198.99	1153.55	133.39	202.97	466.26	189.89
724	24.67	12.28	10.30	5.98	9.57	5.30	4.63	85.20	15.09	9.40	15.44	89.50	10.35	15.75	36.18	14.73
726	74.67	53.09	31.17	18.11	28.96	16.05	14.02	257.84	45.68	28.46	46.73	270.87	31.32	47.66	109.48	44.59
728	52.00	36.97	21.70	12.61	20.17	11.18	9.77	179.55	31.81	19.82	32.54	188.63	21.81	33.19	76.24	31.05
730	661.19	470.12	394.26	239.04	366.34	142.12	124.19	2283.20	404.49	252.03	413.76	2398.56	277.35	422.03	969.48	394.84
732	114.49	61.41	68.27	39.66	63.44	24.61	21.50	395.36	70.04	43.64	71.65	415.33	48.03	73.08	167.87	68.37
734	24.19	17.20	10.10	8.38	13.40	5.20	4.54	83.52	14.80	9.22	15.14	87.74	10.15	15.44	35.46	14.44
736	18.34	13.04	7.66	4.45	7.11	3.94	3.45	63.34	11.22	6.99	11.48	66.54	7.69	11.71	26.89	10.95
738	43.18	30.70	18.02	10.47	16.75	9.28	8.11	149.10	26.41	16.46	27.02	156.63	18.11	27.56	63.31	25.78
740	26.40	18.77	11.02	6.40	10.24	5.68	4.96	91.18	16.15	10.06	16.52	95.79	11.08	16.85	38.72	15.77
973	0.43	0.31	0.26	0.15	0.24	0.09	0.12	1.49	0.26	0.16	0.27	1.57	0.18	0.28	0.63	0.26

5.5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 3

To LATA #	570	951	620	624	'626	Traffic(Erlang)	630	632	From LATA #	634	635	636	638	640	644	646	955
546	5.71	8.40	18.54	9.25	12.10	67.53	9.58	28.30	18.58	16.21	23.40	10.52	10.52	18.07	28.03	12.68	14.22
548	3.24	4.77	10.53	5.26	6.87	38.37	5.44	16.08	10.56	9.21	13.29	5.98	5.98	10.27	15.93	8.07	8.07
550	2.76	6.17	8.95	3.13	5.84	32.60	4.63	13.66	8.97	7.82	11.29	5.08	5.08	8.72	13.53	5.32	5.96
552	79.08	76.42	168.70	84.22	110.09	614.66	87.22	257.57	169.10	147.50	212.97	95.74	95.74	164.46	255.14	100.39	112.44
554	14.97	14.47	31.93	15.94	20.84	116.35	16.51	48.76	32.01	27.92	40.31	12.69	12.69	18.14	48.30	19.00	21.28
556	8.87	8.57	18.92	6.61	12.35	68.94	9.78	28.89	18.97	16.54	16.72	7.52	7.52	12.61	28.62	11.26	12.61
558	14.11	20.75	30.09	10.52	13.75	76.75	15.56	45.95	30.16	26.31	26.59	11.95	11.95	29.34	45.51	17.91	20.06
560	80.28	77.59	171.27	59.85	78.24	436.81	88.54	261.49	171.68	149.74	151.35	68.04	68.04	166.96	259.03	101.92	114.15
562	9.97	9.37	20.68	7.23	9.44	52.73	10.69	31.57	20.72	18.08	18.27	8.21	8.21	20.16	31.27	12.30	13.76
564	8.95	13.17	20.35	10.16	13.28	74.13	10.52	44.38	20.39	17.79	25.69	11.55	11.55	19.83	43.96	17.30	19.37
566	31.32	46.06	46.77	23.35	30.52	170.42	34.55	102.02	66.98	58.42	59.05	26.55	26.55	65.14	101.06	38.76	44.54
568	8.04	11.83	18.28	9.13	11.93	66.60	9.45	27.91	18.32	15.98	23.07	10.37	10.37	17.82	27.64	10.88	17.40
570	0.00	3.34	7.36	2.57	3.36	25.83	3.81	11.24	7.38	6.44	6.51	2.92	2.92	7.18	11.14	4.38	4.91
961	3.07	0.00	9.97	3.49	4.56	25.44	5.16	15.23	10.00	6.72	8.81	3.96	3.96	9.72	15.08	5.94	6.65
620	7.61	11.48	0.00	25.47	33.29	185.87	17.33	77.89	51.14	44.60	42.32	19.03	19.03	32.68	50.70	19.95	22.34
624	2.61	3.84	24.35	0.00	15.89	88.70	8.27	24.43	16.04	13.99	20.20	9.08	9.08	15.60	24.20	8.28	10.66
626	3.31	4.88	30.94	15.45	10.36	112.72	10.51	31.04	20.38	17.78	39.06	11.54	11.54	30.16	30.75	12.10	13.55
628	26.59	27.37	173.72	86.73	113.36	0.00	59.02	174.30	114.43	99.81	144.12	64.79	64.79	169.35	172.65	67.93	76.09
630	4.09	6.02	17.57	8.77	11.47	64.03	0.00	40.83	17.62	15.37	22.19	9.97	9.97	26.07	40.45	15.91	17.82
632	12.73	18.72	63.15	27.28	35.66	199.09	42.99	0.00	83.35	72.70	68.98	26.97	26.97	53.27	125.76	32.52	55.42
634	8.77	12.90	57.31	18.80	24.58	137.21	19.47	87.50	0.00	50.10	47.54	18.58	18.58	36.71	56.96	22.41	25.10
635	7.59	11.16	49.59	16.27	21.27	118.74	16.85	75.72	19.71	0.00	41.14	16.08	16.08	31.77	49.29	19.39	21.72
636	6.01	8.84	36.87	18.41	36.61	134.34	19.05	55.30	36.96	32.24	0.00	31.84	31.84	35.94	55.76	21.94	24.58
638	2.64	3.88	16.20	8.09	10.57	59.01	8.37	21.11	14.12	12.31	0.00	0.00	0.00	15.79	24.49	9.64	10.79
640	8.03	11.80	34.46	17.20	34.22	191.06	27.11	52.61	34.54	30.13	43.50	19.56	19.56	73.98	79.31	31.20	34.95
644	11.61	17.08	49.87	24.90	32.54	181.69	39.23	115.86	49.99	43.60	62.95	28.30	28.30	73.98	0.00	45.16	50.58
646	4.39	6.46	18.85	8.18	12.30	68.69	14.83	28.79	18.90	16.48	23.80	10.70	10.70	27.97	43.39	0.00	19.12
958	5.08	7.47	21.81	10.89	14.23	79.46	17.16	50.67	21.86	19.07	27.53	12.38	12.38	32.35	50.19	19.75	0.00
648	4.06	5.97	21.66	10.81	14.13	78.92	11.20	33.07	15.20	12.34	27.34	12.29	12.29	21.12	32.76	12.89	14.44
650	2.46	3.62	13.14	6.56	8.58	47.88	6.79	20.06	13.17	11.49	16.59	8.58	8.58	12.81	19.88	7.82	8.76
652	6.24	9.17	23.28	11.62	15.19	84.83	17.20	35.55	23.34	20.36	41.99	18.88	18.88	32.42	35.21	19.79	15.52
960	1.29	1.90	4.82	2.41	3.15	17.58	2.49	7.37	4.84	4.22	8.70	3.91	3.91	4.70	7.30	2.87	3.22
654	5.89	8.67	22.00	10.98	14.36	80.17	11.38	33.59	22.05	19.24	27.78	14.36	14.36	24.67	33.28	15.06	14.67
656	28.24	41.53	105.43	52.64	68.80	384.14	62.68	160.97	105.68	92.18	133.10	59.83	59.83	118.20	183.38	72.15	80.81
658	7.75	11.40	28.94	14.45	18.88	105.43	14.96	44.18	29.01	25.30	36.53	16.42	16.42	28.21	50.33	19.80	22.18
660	12.99	27.30	48.51	24.22	45.23	252.51	35.83	105.81	48.63	42.42	87.49	39.33	39.33	67.56	104.82	41.24	46.19
664	16.04	27.13	59.89	20.93	39.08	218.19	30.96	91.43	60.03	52.36	75.60	33.99	33.99	58.38	90.57	35.64	39.92
666	25.61	37.67	66.94	33.42	43.68	243.90	34.61	102.21	67.10	58.53	84.51	37.99	37.99	65.26	101.24	56.91	63.74
668	6.36	12.29	21.84	10.91	14.25	79.59	11.29	33.35	21.90	19.10	27.58	12.40	12.40	21.29	33.04	18.57	20.80
670	7.19	10.58	26.85	13.40	17.52	97.82	13.88	40.99	26.91	15.24	33.89	15.24	15.24	26.17	40.61	15.98	17.89
672	16.43	24.16	61.34	30.62	40.03	223.48	37.41	93.65	61.48	53.63	77.43	34.81	34.81	59.80	92.77	36.50	40.88
674	23.71	34.87	88.51	44.19	57.76	322.50	45.76	135.15	88.73	77.39	111.74	50.23	50.23	86.29	133.87	52.67	59.00
676	8.68	12.77	32.42	16.19	21.16	118.13	16.76	49.50	32.50	28.35	58.47	26.29	26.29	31.61	46.07	19.29	21.61
720	2.97	4.37	11.09	5.53	7.23	40.39	5.73	16.93	11.11	9.69	14.00	6.29	6.29	10.81	16.73	6.60	7.39
721	4.18	8.79	15.61	7.79	10.19	56.88	8.07	23.84	15.65	13.65	19.71	8.86	8.86	15.22	23.61	13.27	10.41
722	47.17	69.37	176.10	87.92	114.92	641.62	91.04	268.87	176.52	153.97	223.31	99.94	99.94	171.67	266.34	104.79	117.36
724	3.66	5.38	13.66	6.82	8.92	49.78	7.06	20.86	13.70	11.95	17.25	7.75	7.75	13.32	20.67	8.13	9.11
726	11.08	16.29	41.35	20.64	26.98	150.66	21.38	63.13	41.45	36.15	52.20	23.47	23.47	40.31	62.54	24.61	27.56
728	7.71	11.34	28.80	14.38	18.79	104.92	14.89	43.97	28.86	25.18	35.35	16.34	16.34	28.07	43.55	17.14	19.19
730	98.08	144.24	366.16	182.80	238.95	1334.12	189.31	559.06	367.04	320.14	462.25	207.81	207.81	356.96	553.79	217.89	244.06
732	16.98	35.68	63.40	31.65	41.38	231.01	32.78	96.81	63.56	55.44	80.04	35.98	35.98	61.81	95.89	37.73	42.26
734	3.59	5.28	13.39	6.69	8.74	48.80	5.92	20.45	13.43	11.71	16.91	7.60	7.60	13.06	20.26	7.97	8.93
736	2.72	4.00	10.16	5.07	6.63	37.01	5.25	15.51	10.18	8.88	12.82	5.76	5.76	9.90	15.36	6.04	6.77
738	6.40	9.42	23.91	11.94	15.60	87.12	12.36	36.51	23.97	20.91	30.19	13.57	13.57	23.31	36.16	14.23	15.94
740	3.92	5.76	14.62	7.30	9.54	53.28	7.56	22.33	14.66	12.78	18.46	8.30	8.30	14.26	22.12	8.70	9.75
973	0.06	0.13	0.24	0.12	0.16	0.87	0.12	0.37	0.24	0.21	0.30	0.14	0.14	0.23	0.36	0.14	0.16

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EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 3

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To LATA *	648	650	652	960	654	Traffic(Erlang)	From LATA *	660	664	666	668	670	672	674	676	720
546	15.99	9.36	24.75	3.70	14.86	656	658	44.92	44.52	81.20	25.86	24.47	56.19	87.32	29.31	10.43
548	6.36	5.32	9.84	2.10	8.45	93.75	25.36	25.52	25.29	46.13	14.69	13.90	31.92	49.61	16.65	5.93
550	5.40	3.16	8.36	1.79	7.17	46.32	14.41	21.68	21.49	39.19	12.48	11.81	27.12	49.61	14.15	5.04
552	101.87	59.65	157.66	33.72	135.29	742.02	200.74	408.87	352.32	739.03	235.36	222.75	511.43	794.72	266.78	94.95
554	19.28	11.29	29.85	6.38	25.61	140.46	38.00	54.18	66.69	97.92	44.55	42.16	96.81	150.43	50.50	17.97
556	11.42	6.69	17.69	3.78	15.17	83.22	22.51	32.10	39.51	82.89	26.40	24.98	57.36	89.13	29.92	10.65
558	18.17	10.64	28.13	6.01	24.44	132.36	35.81	51.05	62.85	131.83	41.98	39.73	91.23	141.76	47.59	16.94
560	103.42	60.56	160.09	34.23	96.15	753.31	203.79	290.56	357.68	525.20	238.94	226.14	519.22	806.82	270.84	96.39
562	12.48	7.31	19.33	4.13	11.61	90.94	24.60	35.08	43.18	63.40	20.19	27.30	62.68	97.40	32.70	11.64
564	17.55	10.28	27.17	5.81	16.32	127.84	34.59	49.31	60.70	127.33	40.55	38.38	88.12	136.92	45.96	16.36
566	40.35	23.63	62.46	13.35	37.51	293.91	79.51	113.36	139.55	292.72	93.22	88.23	202.57	314.78	105.67	37.61
568	15.77	9.23	24.41	5.22	14.66	60.40	31.07	44.30	54.53	114.39	36.43	34.48	79.16	123.01	41.29	14.70
570	4.45	2.60	6.88	1.47	5.90	32.38	8.76	12.49	15.38	32.25	10.27	9.72	22.32	34.66	11.64	4.14
581	6.02	3.53	9.32	1.99	8.00	43.87	11.67	24.17	23.95	43.69	13.91	13.17	30.24	45.99	15.77	5.61
620	25.15	14.72	27.25	5.83	23.38	128.22	34.69	49.46	60.88	89.39	28.47	38.49	88.37	137.33	46.10	16.41
624	12.00	7.03	13.00	2.78	11.16	61.19	16.55	23.60	20.34	42.66	13.59	18.37	42.18	65.54	22.00	7.83
626	15.25	8.93	16.53	3.53	14.18	77.76	21.04	42.85	36.92	54.21	17.27	23.34	53.60	83.28	27.96	9.95
628	85.63	50.14	92.79	19.84	79.61	436.62	118.12	240.59	207.31	304.41	96.94	131.07	300.94	467.64	156.98	55.87
630	13.18	7.72	20.41	3.05	12.26	77.30	18.18	37.04	31.92	46.86	14.92	20.18	46.33	71.99	24.17	8.60
632	40.99	24.00	44.41	9.50	38.11	208.99	56.54	115.16	99.23	145.71	46.40	62.74	144.05	223.84	75.14	26.74
634	19.77	16.54	30.61	6.54	26.26	144.04	38.97	55.56	68.39	100.42	31.98	43.24	99.28	154.27	51.79	18.43
635	17.11	14.31	26.49	5.66	22.73	124.64	33.72	48.08	59.18	86.90	27.67	37.42	85.91	133.50	44.81	15.95
636	27.66	16.19	42.81	9.15	25.71	141.02	38.15	77.71	66.96	98.32	31.31	42.33	97.20	151.04	72.43	18.05
638	12.15	8.18	18.81	4.02	12.99	61.94	16.76	34.13	29.41	43.19	13.75	18.60	42.69	66.34	31.82	7.93
640	25.85	15.14	40.01	5.99	27.64	151.57	35.65	72.62	62.58	91.89	29.26	39.56	90.84	141.16	47.39	16.86
644	37.41	21.90	40.53	8.67	34.78	219.34	59.34	105.10	90.56	132.97	42.35	57.26	131.46	204.28	68.57	24.41
646	14.14	8.28	21.89	3.28	15.12	82.93	22.43	39.74	34.24	71.82	23.87	21.65	49.70	77.23	25.93	9.23
658	16.36	9.58	17.73	3.79	15.21	95.92	25.95	45.96	39.60	83.07	26.46	25.04	57.49	89.53	29.99	10.67
648	0.00	19.15	33.26	7.11	19.98	95.27	25.77	60.37	45.24	94.89	30.22	40.86	93.81	167.63	56.27	17.42
650	19.84	0.00	20.18	4.31	12.12	66.47	15.64	36.63	27.45	57.57	18.33	24.79	56.91	88.44	34.14	10.57
652	32.99	19.32	0.00	10.92	30.68	146.29	39.58	92.70	69.46	145.71	46.40	72.15	155.65	257.41	86.41	30.75
660	6.84	4.00	10.58	0.00	5.53	30.31	8.20	16.70	10.08	21.13	6.73	14.95	34.32	53.34	27.25	5.54
654	21.83	12.78	33.79	6.28	0.00	111.29	30.11	61.32	45.95	96.39	30.70	41.50	95.29	148.07	49.71	17.69
656	90.95	61.24	140.79	30.10	97.24	0.00	219.55	293.86	253.22	461.87	147.09	198.87	456.61	496.68	238.19	84.77
658	24.96	14.62	38.64	8.26	26.69	222.74	0.00	80.65	69.50	126.77	40.37	38.21	87.73	136.32	65.37	23.27
660	68.75	106.42	106.42	19.79	63.92	350.55	94.83	166.45	303.60	96.69	96.69	130.72	300.14	466.40	156.57	64.08
664	51.66	30.25	79.97	11.97	48.03	302.92	81.95	166.91	0.00	301.70	96.08	79.07	181.55	282.12	94.70	48.15
666	82.49	48.30	127.70	19.11	76.69	420.62	113.79	231.77	229.67	0.00	233.48	180.38	289.91	450.50	151.23	76.89
668	26.92	15.76	41.67	6.24	25.03	137.26	37.13	75.63	74.95	239.23	0.00	41.20	94.60	147.01	49.35	25.09
670	33.08	19.37	58.90	12.59	30.76	168.70	31.95	92.96	56.07	168.02	37.46	0.00	290.69	296.84	99.65	35.46
672	75.59	44.26	134.56	28.77	70.27	385.41	72.99	212.37	128.10	268.70	85.57	289.24	958.36	1031.97	227.65	81.02
674	125.44	63.87	194.18	41.52	101.41	389.33	105.32	306.47	184.86	387.78	123.49	274.29	958.36	0.00	328.52	101.67
676	45.95	26.90	71.12	23.14	37.14	203.72	55.11	112.25	67.71	142.03	45.23	100.47	230.68	358.46	0.00	37.24
720	13.66	8.00	24.32	4.52	12.70	69.66	18.85	44.14	33.08	69.38	22.10	34.36	78.88	106.59	35.78	0.00
721	19.24	11.26	29.78	6.37	17.89	98.09	26.54	62.16	53.56	112.35	35.78	42.07	96.59	150.09	50.38	20.62
722	217.01	127.07	335.93	71.83	201.75	1106.53	299.35	609.72	525.39	1102.07	350.98	545.71	1089.53	1693.04	568.34	353.98
724	16.84	9.86	29.97	5.57	15.65	85.86	23.23	47.31	40.77	85.51	27.23	42.34	97.22	131.36	44.10	27.47
726	50.96	29.84	90.71	16.87	47.37	259.83	70.29	143.17	123.37	258.78	62.41	128.14	294.21	397.55	133.45	83.12
728	35.49	20.78	54.93	11.74	32.99	180.94	48.95	99.70	85.91	207.24	57.39	77.59	178.16	276.84	92.93	57.88
730	451.22	264.22	698.50	149.35	419.51	2300.80	622.43	1267.79	1092.45	2635.26	839.26	986.69	2265.44	3520.32	1181.74	483.75
732	78.13	32.03	120.95	18.10	72.64	398.40	107.78	219.53	189.17	456.32	145.32	170.65	392.28	426.70	143.24	83.75
734	16.51	9.66	25.55	5.46	11.35	84.16	22.77	46.37	39.96	96.40	26.70	36.09	82.87	128.77	43.23	17.69
736	12.52	7.33	19.38	4.14	11.64	63.83	17.27	35.17	30.31	63.57	20.25	27.37	62.85	97.66	32.78	13.42
738	29.47	17.25	52.46	9.75	27.39	150.25	40.65	82.79	71.34	149.64	47.66	74.10	147.94	229.89	77.17	48.06
740	18.02	10.55	27.89	5.96	16.75	91.88	24.86	50.63	43.63	91.51	29.14	39.40	90.47	140.58	47.19	19.32
973	0.30	0.17	0.46	0.10	0.27	1.51	0.41	0.63	0.72	1.73	0.55	0.65	1.48	1.61	0.77	0.32

EXHIBIT 5.5 LATA-TO-LATA TRAFFIC MATRIX, Part 3

To LATA #	721	722	724	726	728	730	732	734	736	738	740	973
From LATA #	721	722	724	726	728	730	732	734	736	738	740	973
546	20.58	194.96	14.00	42.47	28.64	578.70	89.77	18.62	10.44	24.37	14.41	0.33
548	11.69	110.76	7.95	24.13	16.27	230.14	35.70	7.41	5.93	13.84	8.19	0.13
550	9.93	94.10	6.76	20.50	13.83	195.53	30.33	6.29	5.04	11.76	6.96	0.16
552	131.09	1774.48	127.43	386.57	260.71	3686.99	571.93	118.64	95.00	221.78	131.19	2.08
554	24.81	335.90	24.12	73.17	49.35	697.92	108.26	22.46	17.98	41.98	24.83	0.39
556	14.70	199.02	14.29	43.36	29.24	413.51	64.14	13.31	10.65	24.87	14.71	0.23
558	23.38	316.53	22.73	68.96	46.50	657.69	102.02	21.16	16.95	39.56	23.40	0.37
560	133.08	1801.50	129.37	392.45	264.67	3743.12	580.63	120.45	96.44	225.16	133.19	2.11
562	16.07	217.48	15.62	47.38	31.95	451.87	70.09	14.54	11.64	27.18	16.08	0.25
564	22.59	305.73	21.95	66.60	44.92	635.24	98.54	20.44	16.37	38.21	22.60	0.36
566	51.92	702.66	50.47	153.12	103.26	1460.39	226.54	46.99	37.63	87.85	51.96	0.82
568	20.29	274.66	19.72	59.83	40.35	570.68	88.52	18.36	14.70	34.33	20.31	0.32
570	5.72	77.45	5.56	16.87	11.38	160.91	24.96	5.18	4.15	9.68	5.73	0.09
961	11.07	104.91	7.53	22.85	15.41	217.98	48.31	7.01	5.62	13.11	7.76	0.18
962	22.65	306.63	22.02	66.80	45.05	637.11	98.83	20.50	16.42	38.32	22.67	0.36
624	10.81	146.34	10.51	31.88	21.50	304.05	47.16	9.78	7.83	18.29	10.82	0.17
626	13.74	185.96	13.35	40.51	27.32	386.38	59.94	12.43	9.96	23.24	13.75	0.22
630	77.14	1044.16	74.98	227.47	153.41	2169.53	336.54	69.81	55.90	130.50	77.20	1.22
632	11.87	160.74	11.54	35.02	23.62	333.99	51.81	10.76	8.61	20.09	11.88	0.19
634	36.92	499.79	35.89	108.88	73.43	1038.46	161.09	33.42	26.76	62.47	36.95	0.59
636	25.45	344.45	24.74	75.04	50.61	715.69	111.02	23.03	18.44	43.05	25.47	0.40
638	22.02	298.07	21.41	64.93	43.79	619.33	96.07	19.93	15.96	37.25	22.04	0.35
640	10.94	137.25	10.64	32.27	21.76	307.79	47.75	9.90	7.93	18.51	10.95	0.17
642	33.28	315.18	32.75	68.66	46.31	654.68	101.59	21.07	16.87	39.39	23.30	0.37
644	33.69	456.12	32.75	99.36	67.01	947.71	147.01	30.50	24.42	57.01	33.72	0.53
646	18.20	172.45	12.38	37.57	25.34	358.31	55.58	11.53	9.23	21.55	12.75	0.20
958	14.74	199.47	14.32	43.45	29.31	414.45	64.29	13.34	10.68	24.93	14.75	0.23
648	24.04	325.47	23.37	70.90	47.82	676.27	104.90	21.78	17.42	40.68	24.06	0.38
650	14.59	197.47	14.16	43.02	29.01	410.30	44.55	13.20	10.57	24.68	14.60	0.23
652	36.92	499.79	41.27	125.21	73.43	1038.46	161.09	33.42	26.76	71.84	36.95	0.59
960	7.65	103.56	7.44	22.56	15.21	215.18	23.36	6.92	5.54	12.94	7.66	0.12
654	24.42	330.62	23.74	72.03	48.57	686.96	106.56	22.10	17.70	41.32	24.44	0.39
656	117.04	1584.28	113.77	345.13	232.76	3291.79	510.62	105.92	84.82	198.01	117.13	1.86
658	32.12	434.82	31.23	94.73	63.88	903.47	140.15	29.07	23.28	54.35	32.15	0.51
660	88.47	1041.39	74.78	226.86	153.00	2163.79	335.65	69.63	55.75	130.16	76.99	1.22
662	76.45	899.88	64.62	196.04	132.21	1869.76	290.04	60.16	48.18	112.47	66.53	1.05
664	122.08	1436.98	103.19	313.04	242.79	3433.59	532.62	110.49	76.93	179.60	106.24	1.94
666	39.84	468.92	33.67	102.15	68.89	1120.45	173.80	31.35	25.10	58.61	34.67	0.63
668	42.58	662.79	47.60	144.39	84.67	1197.50	185.76	38.53	30.95	82.84	42.61	0.68
670	97.27	1316.69	108.74	329.86	193.45	2735.61	424.38	88.03	70.49	164.57	97.34	1.54
672	140.37	1900.10	136.45	413.93	279.16	3948.01	428.69	127.04	101.72	237.48	140.48	1.56
674	51.41	695.98	49.98	151.62	102.25	1446.09	157.02	46.53	37.26	86.99	51.45	0.82
676	20.22	416.49	20.91	90.73	61.19	568.68	88.21	18.30	14.65	52.05	20.23	0.32
720	0.00	385.39	27.68	83.96	56.62	800.76	124.21	25.77	20.63	48.17	28.49	0.69
722	321.15	513.30	0.00	111.82	228.22	2121.02	329.12	29.06	354.16	626.83	321.40	5.09
724	24.92	1553.40	111.55	0.00	0.00	9032.77	1401.17	290.66	18.06	64.15	24.94	0.34
726	75.41	1081.75	51.05	235.66	0.00	1477.02	229.12	72.32	83.16	194.15	75.47	1.20
728	52.51	9039.32	649.13	1969.20	0.00	0.00	4433.49	919.67	135.20	79.97	79.97	0.83
730	667.77	1565.24	97.74	340.98	229.96	4949.04	0.00	104.65	83.80	195.63	115.72	2.79
732	115.63	330.65	23.74	72.03	73.93	1045.47	106.57	0.00	26.94	41.33	37.20	0.59
734	24.43	381.60	18.01	83.13	56.06	521.03	80.62	25.51	0.00	47.69	28.21	0.29
736	18.52	898.27	64.51	195.69	131.97	1226.50	190.26	39.47	48.09	0.00	66.41	0.69
738	43.61	360.98	25.92	78.64	80.71	1141.57	116.35	36.73	29.41	68.66	0.00	0.42
740	26.67	5.92	0.37	1.29	0.87	18.71	2.90	0.60	0.32	0.74	0.44	0.00
973	0.67											

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	All	231181	112579.3	562896.5	3127.203			
1	730	12220	6782.357	33911.79	188.399	LSANCA02	9213	7878
2	132	11006	5837.611	29188.05	162.156	NYCMNY54	4992	1410
3	358	8173	4086.055	20430.27	113.502	CHCGILCL	5987	3426
4	722	5877	3261.859	16309.29	90.607	SNFCCA01	8492	8719
5	224	5612	3213.674	16068.37	89.269	NWRKNJ02	5016	1430
6	128	4970	2523.436	12617.18	70.095	BSTNMAFR	4422	1248
7	228	5122	2508.461	12542.30	69.679	PHLAPAMK	5250	1459
8	340	5174	2506.272	12531.36	69.619	DTRTMIBH	5536	2829
9	236	3270	2127.661	10638.31	59.102	WASHDCSW	5623	1578
10	560	4001	1971.213	9856.06	54.756	HSTNTX01	8946	3550
11	552	3941	1941.652	9708.26	53.935	DLLSTXTL	8432	4033
12	460	3698	1792.180	8960.90	49.783	OJUSFTL	8320	538
13	520	3344	1601.054	8005.27	44.474	STLSMO09	6807	3483
14	438	3513	1586.734	7933.67	44.076	ATLNGATL	7259	2084
15	920	3077	1585.091	7925.46	44.030	HRFRCT03	4687	1373
16	234	2996	1449.213	7246.06	40.256	PITBPADG	5619	2184
17	674	2954	1448.078	7240.39	40.224	STTLWA06	6337	8896
18	656	2463	1307.375	6536.88	36.316	DNVRCOMA	7501	5899
19	238	2307	1229.543	6147.71	34.154	BLTMMDC	5511	1574
20	952	2447	1185.901	5929.51	32.942	TAMPFLXA	8172	1147
21	732	2116	1174.425	5872.12	32.623	SNDGCA01	9468	7630
22	628	2319	1162.130	5810.65	32.281	MPLSMNDT	5780	4526
23	666	2234	1117.679	5588.39	31.047	PHNXAZMA	9133	6748
24	356	2158	1013.683	5068.42	28.158	MILWWI48	5788	3588
25	324	2227	1008.429	5042.15	28.012	CLMBOH11	5972	2554
26	348	2046	991.077	4955.39	27.530	GDRPMIBL	5628	3261
27	320	2139	968.581	4842.91	26.905	CLEVOH02	5575	2544
28	524	2048	968.190	4840.95	26.894	KSCYMO09	7029	4202
29	672	2047	958.267	4791.33	26.619	PLTDOR62	6799	8915
30	536	2011	937.450	4687.25	26.040	OKCYOKCE	7946	4372
31	222	1570	899.050	4495.25	24.974	TRENNJTN	5156	1440
32	336	2042	861.673	4308.36	23.935	IPLSIN01	6272	2992
33	140	1603	850.369	4251.85	23.621	BFLONYFR	5076	2327
34	136	1546	820.132	4100.66	22.781	SYRCNYSU	4797	1990
35	422	1873	810.789	4053.95	22.522	CHRLNCCA	6657	1698
36	566	1561	769.073	3845.37	21.363	SNANTXCA	9225	4063
37	726	1380	765.929	3829.65	21.276	SCRMCA01	8303	8581
38	482	2238	750.127	3750.64	20.837	JCSNMSPS	8035	2880
39	922	1706	746.977	3734.88	20.749	CNCNOHWS	6263	2680
40	232	1487	719.285	3596.43	19.980	SCTNPASC	5042	1715
41	226	1472	712.030	3560.15	19.779	HRBGPAHA	5363	1733
42	470	1572	689.029	3445.15	19.140	NSVLTNMT	7009	2711
43	134	1257	666.821	3334.11	18.523	ALBYNYSS	4639	1629
44	660	1619	656.700	3283.50	18.242	SLKCUTMA	7574	7066
45	476	1632	630.416	3152.08	17.512	BRHMALMT	7518	2446
46	252	1304	625.497	3127.49	17.375	NRFLVABS	5917	1223
47	468	1388	602.421	3012.11	16.734	MMPHTNMA	7471	3127
48	664	1399	600.800	3004.00	16.689	ALBQNMMA	8549	5887
49	528	1551	588.487	2942.44	16.347	LTRKARFR	7721	3448

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50	326	1290	584.137	2920.69	16.226	TOLDOH21	5703	2820
51	538	1252	583.634	2918.17	16.212	TULSOKTS	7708	4176
52	325	1256	568.741	2843.71	15.798	AKRNOH25	5637	2472
53	328	1187	537.497	2687.48	14.930	DYTNOH15	6112	2704
54	532	1122	536.154	2680.77	14.893	WCHTKSBR	7489	4520
55	458	1101	533.583	2667.91	14.822	ORLDFLMA	7954	1032
56	728	961	533.375	2666.88	14.816	FRSNCA01	8669	8239
57	350	1128	529.858	2649.29	14.718	APPLWI01	5588	3778
58	676	1082	525.928	2629.64	14.609	SPKNWA01	6247	8177
59	466	1399	520.576	2602.88	14.460	LXTNKYXA	6472	2555
60	632	1110	510.180	2550.90	14.172	DESMIADT	6472	4275
61	424	1160	506.627	2533.14	14.073	GNBONCEU	6402	1639
62	974	951	504.492	2522.46	14.014	ROCHNYXA	4913	2195
63	120	1146	496.400	2482.00	13.789	PTLDMEPO	3999	1526
64	248	1033	495.505	2477.52	13.764	RCMDVAGR	5906	1472
65	644	1013	486.186	2430.93	13.505	OMAHNENW	6687	4595
66	486	1147	479.502	2397.51	13.319	SHPTLATL	8271	3493
67	344	987	478.100	2390.50	13.281	SGNWMIFA	5404	3074
68	230	986	476.944	2384.72	13.248	ALNAPAAL	5460	1972
69	452	975	472.519	2362.59	13.126	JCVLFLCL	7647	1276
70	122	958	470.100	2350.50	13.058	MNCHNHCO	4385	1343
71	738	798	442.907	2214.53	12.303	SKTNCA01	8435	8531
72	244	921	441.781	2208.91	12.272	RONKVALX	6196	1802
73	354	931	437.321	2186.61	12.148	MDSNW111	5888	3796
74	130	955	437.100	2185.50	12.142	PRVDMAWA	4550	1219
75	474	963	422.096	2110.48	11.725	KNVLTNMA	6801	2251
76	670	896	415.889	2079.45	11.552	EUGNOR53	7128	8955
77	126	795	403.648	2018.24	11.212	SPFDMAWO	4620	1408
78	430	1020	401.611	2008.05	11.156	GNVLSCDT	6872	1895
79	254	1054	393.601	1968.00	10.933	CHTNWVLE	6152	2174
80	133	737	390.968	1954.84	10.860	PGHKNYSH	4822	1525
81	488	912	381.260	1906.30	10.591	LFYTLAMA	8587	2997
82	951	868	379.097	1895.49	10.530	RCMTNCXA	6232	1329
83	636	749	373.314	1866.57	10.370	FARGNDBC	5614	5181
84	478	949	366.584	1832.92	10.183	MTGMALTT	7492	2247
85	668	729	364.721	1823.61	10.131	TCSNAZMA	9346	6487
86	554	746	363.122	1815.61	10.087	LGVWXTL	8347	3661
87	634	765	363.107	1815.53	10.086	DVNPIADT	6273	3818
88	658	676	358.825	1794.12	9.967	CLSPCOMA	7680	5813
89	558	703	346.354	1731.77	9.621	AUSTTXGR	9004	3997
90	534	721	344.534	1722.67	9.570	TPKAKSJA	7110	4369
91	620	681	341.272	1706.36	9.480	ROCHMNRO	5916	4326
92	426	777	339.353	1696.77	9.426	RLGHNCMO	6344	1434
93	332	793	334.626	1673.13	9.295	SBNDIN05	5919	3206
94	564	679	334.530	1672.65	9.292	CRCHXTTU	9481	3754
95	138	628	333.145	1665.73	9.254	BNGHNYHY	4943	1837
96	652	777	324.211	1621.05	9.006	BOISIDMA	7094	7866
97	522	684	322.017	1610.08	8.945	SPFDMOTL	7311	3833
98	949	725	316.642	1583.21	8.796	FYVLNCXA	6501	1385
99	434	795	312.544	1562.72	8.682	CLMASCTL	6902	1588

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100	490	740	309.356	1546.78	8.593	NWORLAMA	8482	2638
101	640	700	308.000	1540.00	8.556	SXFLSDCO	6278	4901
102	477	790	305.165	1525.82	8.477	HNVLALNT	7267	2534
103	635	662	304.269	1521.35	8.452	CDRRIADT	6262	4021
104	939	624	302.412	1512.06	8.400	FTMYFLXA	8359	904
105	568	610	300.535	1502.67	8.348	HLNLTXTAT	9815	3668
106	454	617	299.020	1495.10	8.306	GSVLFLAN	7838	1310
107	923	653	295.691	1478.46	8.214	MNFDHDXF	5784	2575
108	440	642	289.975	1449.88	8.055	SVNHGABS	7269	1379
109	322	636	287.993	1439.97	8.000	YNTWQHO2	5557	2354
110	444	620	280.038	1400.19	7.779	ALBYGAMA	7650	1816
111	721	521	276.756	1383.78	7.688	LSVGNV02	8665	7411
112	492	656	274.240	1371.20	7.618	BTRGLAMA	8476	2874
113	740	488	270.850	1354.25	7.524	SNLOCA01	9005	8348
114	956	583	264.140	1320.70	7.337	BRSTTNXA	6529	2056
115	346	544	263.512	1317.56	7.320	LNNGMIMN	5583	3081
116	368	506	256.410	1282.05	7.122	PEORILPJ	6362	3592
117	256	678	253.189	1265.95	7.033	CLBGWVMA	5864	2096
118	724	456	253.090	1265.45	7.030	CHICCA01	8059	8668
119	464	678	252.288	1261.44	7.008	QWBOKYMA	6731	2927
120	540	510	251.267	1256.33	6.980	ELPSTXMA	9231	5655
121	352	529	248.489	1242.44	6.902	EUCLWI01	5697	4262
122	734	447	248.094	1240.47	6.892	BKFDCA01	8947	8059
123	432	626	246.104	1230.52	6.836	FLRNSCMA	6745	1417
124	124	526	245.000	1225.00	6.806	BURLVTMA	4270	1808
125	472	542	238.996	1194.98	6.639	CHTGYNMA	7098	2366
126	562	483	237.964	1189.82	6.610	BUMTTXTE	8777	3344
127	654	514	235.100	1175.50	6.531	CSPRWYMA	6916	6297
128	648	506	232.190	1160.95	6.450	HLNAMTMA	6339	7350
129	462	588	227.775	1138.87	6.327	LSVLKYCS	6529	2773
130	338	532	224.491	1122.45	6.236	BLTNIN01	6417	2984
131	480	581	224.431	1122.16	6.234	MOBLALMT	8167	2367
132	334	530	223.647	1118.23	6.212	HNTNIN01	6008	3013
133	240	453	222.927	1114.63	6.192	HGTWMDHG	5555	1772
134	448	456	220.993	1104.97	6.139	PNSCFLBL	8147	2200
135	446	488	220.417	1102.09	6.123	MACNGAMT	7364	1866
136	542	444	218.750	1093.75	6.076	MDLDTXMU	8934	4890
137	556	442	217.765	1088.82	6.049	WACOTX01	8702	3966
138	958	443	215.758	1078.79	5.993	LNCLNEXL	6823	4674
139	546	433	212.535	1062.67	5.904	AMRLTXDR	8266	5075
140	924	435	210.416	1052.08	5.845	ERIEPAXH	5321	2397
141	626	413	206.968	1034.84	5.749	STCDMNTO	5721	4703
142	420	467	203.961	1019.81	5.666	AHVLNCOH	6747	2001
143	442	462	202.235	1011.17	5.618	AGSTGAMT	7090	1675
144	436	509	200.107	1000.53	5.559	CHTNSCDT	7022	1279
145	374	391	198.135	990.67	5.504	SPFDILSD	6540	3513
146	720	370	196.544	982.72	5.460	RENONV02	8064	8323
147	736	339	188.152	940.76	5.226	SLNSCA01	8723	8561
148	646	383	186.536	932.68	5.182	GDISNENW	6901	4936
149	362	365	184.960	924.80	5.138	CAIRILCF	7042	3168

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150	360	362	183.439	917.20	5.096	RCFRILRT	6021	3675
151	630	357	164.551	822.75	4.571	SXCYIADT	6468	4767
152	250	342	164.049	820.25	4.557	LYBGVACH	6094	1703
153	220	285	163.203	816.02	4.533	ATCYNJAC	5284	1284
154	624	325	162.869	814.34	4.524	DLTHMNME	5352	4529
155	638	329	162.226	811.13	4.506	BSMRNDBC	5843	5735
156	370	314	159.116	795.58	4.420	CHMPILCP	6371	3336
157	428	361	157.666	788.33	4.380	WLMGNCFO	6657	1145
158	342	324	156.886	784.43	4.358	MRQTMIMN	5080	3875
159	330	369	155.709	778.54	4.325	EVVLIN01	6729	3018
160	456	302	146.360	731.80	4.066	DYBHFLMA	7791	1052
161	976	279	141.380	706.90	3.927	MTONILXC	6503	3291
162	650	307	140.874	704.37	3.913	BLNGMTMA	6390	6790
163	526	369	140.008	700.04	3.889	FTSMARSU	7752	3855
164	364	268	135.806	679.03	3.772	STNGILSI	6158	3714
165	530	356	135.075	675.38	3.752	PNBLARJE	7803	3358
166	246	276	132.390	661.95	3.678	CLPPVACU	5791	1666
167	544	267	131.546	657.73	3.654	LBCKTXPS	8598	4962
168	242	241	128.444	642.22	3.568	SLBRMDSB	5577	1316
169	450	259	125.520	627.60	3.487	PNCYFLMA	8058	1914
170	548	246	121.199	606.00	3.367	WCFLTXXNI	8322	4406
171	961	233	114.794	573.97	3.189	SANGTXXA	8944	4563
172	366	225	114.016	570.08	3.167	BLTNILXD	6358	3483
173	484	318	106.143	530.72	2.948	GLPTMSTS	8318	2511
174	550	209	102.970	514.85	2.860	ABLNTXOR	8698	4513
175	953	201	97.412	487.06	2.706	TLHSFLXA	7877	1716
176	376	184	93.240	466.20	2.590	QNCYILQY	6642	3791
177	521	194	91.332	456.66	2.537	JFCYMOXA	6963	3782
178	977	171	86.652	433.26	2.407	GLBGILXD	6370	3732
179	570	172	84.741	423.70	2.354	BRYNTXXA	8827	3788
180	978	167	84.625	423.13	2.351	OLNYILXE	6623	3172
181	937	178	75.112	375.56	2.086	RCMDINXB	6157	2813
182	960	161	67.579	337.89	1.877	CRALIDXX	6228	8085
183	938	157	66.250	331.25	1.840	TRRHINXA	6431	3145
184	928	117	56.122	280.61	1.559	CHVLVAXA	5919	1683
185	932	123	45.933	229.66	1.276	BLFDWVXA	6315	1990
186	927	78	37.415	187.07	1.039	HRBGVAXA	5879	1787
187	929	28	13.431	67.15	0.373	EDBGVAXA	5783	1789
188	973	8	4.440	22.20	0.123	PLSPCAXG	9211	7561

EXHIBIT 5.7 NODE LOCATIONS IN 11-NODE NETWORK

List of Access Nodes in 11-Node Network

Node #	CLLI	LATA #	Coordinates	
			V	H
1	NYCMNY54	132	4992	1410
2	PHLAPAMK	228	5250	1459
3	WASHDCSW	236	5623	1578
4	ATLNGATL	438	7259	2084
5	DLLSTXTL	552	8432	4033
6	PHNXAZMA	666	9133	6748
7	LSANCA02	730	9213	7878
8	SNFCCA01	722	8492	8719
9	DNVRCOMA	656	7501	5899
10	CHCGILCL	358	5987	3426
11	STLSMD09	520	6807	3483

EXHIBIT 5.8

Map of 11-Node Network Configuration

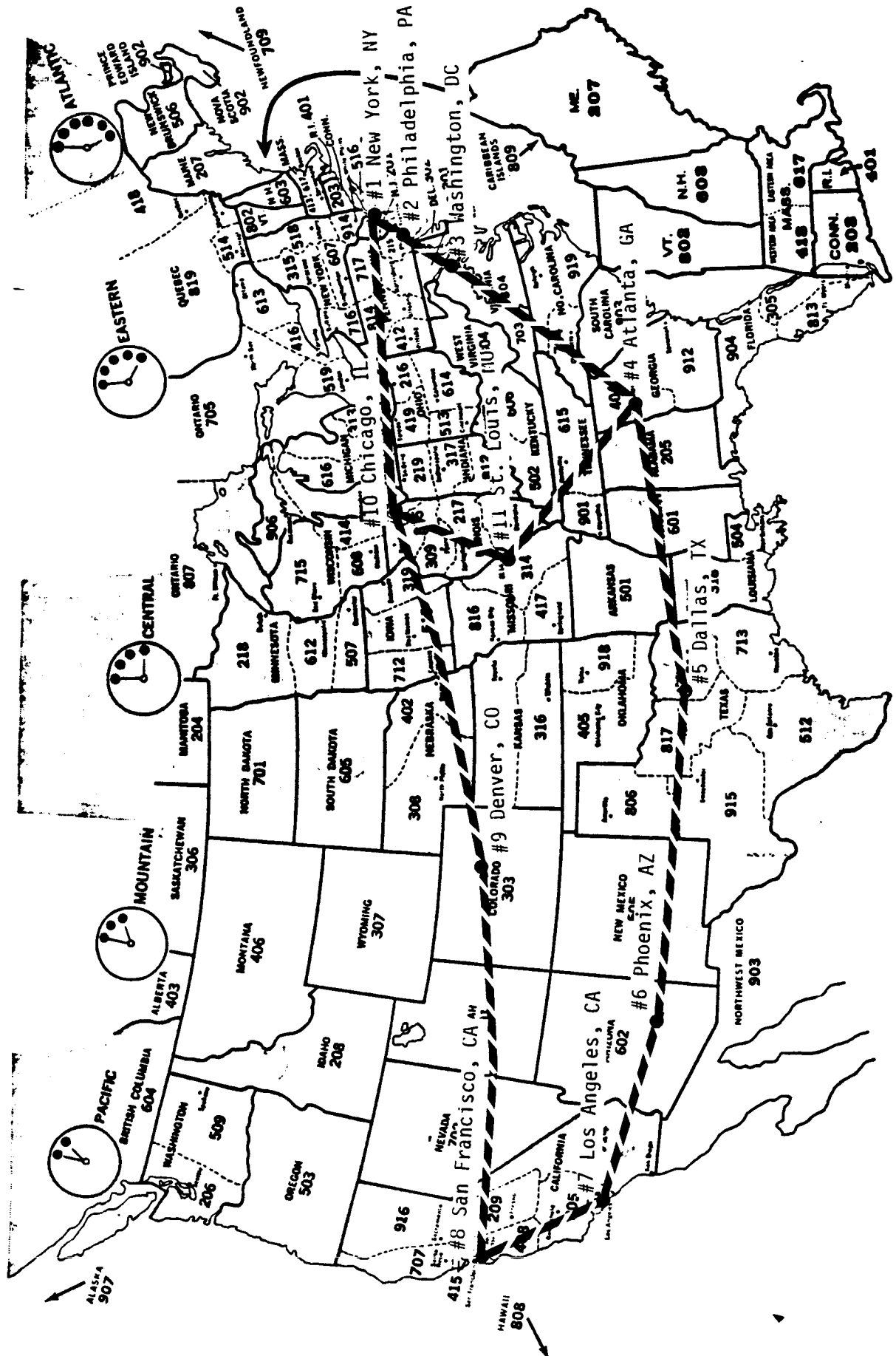


EXHIBIT 5.9 LINKS IN 11-NODE NETWORK

List of Links between the 11 Network Nodes

From to Node #	Type	From LATA	To LATA	Distance miles
1 to 2	South	132	228	83.05
2 to 3	South	228	236	123.81
3 to 4	South	236	438	541.53
4 to 5	South	438	552	719.34
5 to 6	South	552	666	886.71
6 to 7	South	666	730	358.23
7 to 8	North	730	722	350.30
8 to 9	North	722	656	945.22
9 to 10	North	656	358	916.95
10 to 1	North	358	132	710.93
10 to 11	Cross	358	520	259.93
11 to 4	Cross	520	438	464.92

List of LATA Numbers served by each Node in the 11-Node Network Configuration

		LATA Pop.	LATA AcLi	DrBH CCS	IX Erlg.	Acc.Pt.	V	H	
Node #	LATA #	(1000)	(1000)	(1000)	(1000)				
New York	120	1146	496.400	2482.00	13.789	PTLDMEPO	3999	1526	
	122	958	470.100	2350.50	13.058	MNCHNHCO	4385	1343	
	124	526	245.000	1225.00	6.806	BURLVTMA	4270	1808	
	126	795	403.648	2018.24	11.212	SPFDMAWO	4620	1408	
	128	4970	2523.436	12617.18	70.095	BSTNMAFR	4422	1248	
	130	955	437.100	2185.50	12.142	PRVDMAWA	4550	1219	
	920	3077	1585.091	7925.46	44.030	HRFRCT03	4687	1373	
	#	132	11006	5837.611	29188.05	162.156	NYCMNY54	4992	1410
	1	133	737	390.968	1954.84	10.860	PGHKNYSH	4822	1525
	134	1257	666.821	3334.11	18.523	ALBYNYSS	4639	1629	
New York	136	1546	820.132	4100.66	22.781	SYRCNYSU	4797	1990	
	138	628	333.145	1665.73	9.254	BNGHNYHY	4943	1837	
	140	1603	850.369	4251.85	23.621	BFLONYFR	5076	2327	
	974	951	504.492	2522.46	14.014	ROCHNYXA	4913	2195	
	224	5612	3213.674	16068.37	89.269	NWRKNJ02	5016	1430	
Total this Node__		35767	-----		521.611	-----			
Philadel.	N 220	285	163.203	816.02	4.533	ATCYNJAC	5284	1284	
	O 222	1570	899.050	4495.25	24.974	TRENNJTN	5156	1440	
	D 226	1472	712.030	3560.15	19.779	HRBGPAHA	5363	1733	
	E 228	5122	2508.461	12542.30	69.679	PHLAPAMK	5250	1459	
	230	986	476.944	2384.72	13.248	ALNAPAAL	5460	1972	
	2 232	1487	719.285	3596.43	19.980	SCTNPASC	5042	1715	
	234	2996	1449.213	7246.06	40.256	PITBPADG	5619	2184	
	924	435	210.416	1052.08	5.845	ERIEPAXH	5321	2397	
	Total this Node__		14353	-----		198.295	-----		
	Wash.DC	236	3270	2127.661	10638.31	59.102	WASHDCSW	5623	1578
238		2307	1229.543	6147.71	34.154	BLTMMDCH	5511	1574	
N 240		453	222.927	1114.63	6.192	HGTWMDHG	5555	1772	
O 242		241	128.444	642.22	3.568	SLBRMSDB	5577	1316	
D 244		921	441.781	2208.91	12.272	RONKVALX	6196	1802	
E 246		276	132.390	661.95	3.678	CLPPVACU	5791	1666	
248		1033	495.505	2477.52	13.764	RCMDVAGR	5906	1472	
# 250		342	164.049	820.25	4.557	LYBGVACH	6094	1703	
3 252		1304	625.497	3127.49	17.375	NRFLVABS	5917	1223	
927		78	37.415	187.07	1.039	HRBGVAXA	5879	1787	
Wash.DC	928	117	56.122	280.61	1.559	CHVLVAXA	5919	1683	
	929	28	13.431	67.15	0.373	EDBGVAXA	5783	1789	
	254	1054	393.601	1968.00	10.933	CHTNWVLE	6152	2174	
	256	678	253.189	1265.95	7.033	CLBGWVMA	5864	2096	
	932	123	45.933	229.66	1.276	BLFDWVXA	6315	1990	
Total this Node__		12225	-----		176.875	-----			
	420	467	203.961	1019.81	5.666	AHVLNCOH	6747	2001	
	422	1873	810.789	4053.95	22.522	CHRLNCCA	6657	1698	
	424	1160	506.627	2533.14	14.073	GNBONCEU	6402	1639	
	426	777	339.353	1696.77	9.426	RLGHNCMO	6344	1434	

List of LATA Numbers served by each Node in the 11-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	AcLiOrBH (1000)	CCS (1000)	IX Erlg. (1000)	Acc.Pt.	V	H
N	428	361	157.666	788.33	4.380	WLMGNCFO	6657	1145
O	949	725	316.642	1583.21	8.796	FYVLNCXA	6501	1385
D	951	868	379.097	1895.49	10.530	RCMTNCXA	6232	1329
E	430	1020	401.611	2008.05	11.156	GNVLSCDT	6872	1895
	432	626	246.104	1230.52	6.836	FLRNSCMA	6745	1417
#	434	795	312.544	1562.72	8.682	CLMASCTL	6902	1588
4	436	509	200.107	1000.53	5.559	CHTNSCDT	7022	1279
	438	3513	1586.734	7933.67	44.076	ATLNGATL	7259	2084
	440	642	289.975	1449.88	8.055	SVNHGABS	7269	1379
	442	462	202.235	1011.17	5.618	AGSTGAMT	7090	1675
Atlanta	444	620	280.038	1400.19	7.779	ALBYGAMA	7650	1816
	446	488	220.417	1102.09	6.123	MACNGAMT	7364	1866
	448	456	220.993	1104.97	6.139	PNSCFLBL	8147	2200
	450	259	125.520	627.60	3.487	PNCYFLMA	8058	1914
	452	975	472.519	2362.59	13.126	JCVLFLCL	7647	1276
	454	617	299.020	1495.10	8.306	GSVLFLAN	7838	1310
	456	302	146.360	731.80	4.066	DYBHFLMA	7791	1052
	458	1101	533.583	2667.91	14.822	ORLDFLMA	7954	1032
	460	3698	1792.180	8960.90	49.783	OJUSFLTL	8320	538
	939	624	302.412	1512.06	8.400	FTMYFLXA	8359	904
	952	2447	1185.901	5929.51	32.942	TAMPFLXA	8172	1147
	953	201	97.412	487.06	2.706	TLHSFLXA	7877	1716
	468	1388	602.421	3012.11	16.734	MMPHTNMA	7471	3127
	470	1572	689.029	3445.15	19.140	NSVLTNMT	7009	2711
	472	542	238.996	1194.98	6.639	CHTGTNMA	7098	2366
	474	963	422.096	2110.48	11.725	KNVLTNMA	6801	2251
	956	583	264.140	1320.70	7.337	BRSTTNXA	6529	2056
	476	1632	630.416	3152.08	17.512	BRHMALMT	7518	2446
	477	790	305.165	1525.82	8.477	HNVLALNT	7267	2534
	478	949	366.584	1832.92	10.183	MTGMALTT	7492	2247
	480	581	224.431	1122.16	6.234	MOBLALMT	8167	2367
	482	2238	750.127	3750.64	20.837	JCSNMSPS	8035	2880
	484	318	106.143	530.72	2.948	GLPTMSTS	8318	2511
Total this Node		37142			450.816			
	486	1147	479.502	2397.51	13.319	SHPTLATL	8271	3493
	488	912	381.260	1906.30	10.591	LFYTLAMA	8587	2997
	490	740	309.356	1546.78	8.593	NWORLAMA	8482	2638
	492	656	274.240	1371.20	7.618	BTRGLAMA	8476	2874
	526	369	140.008	700.04	3.889	FTSMARSU	7752	3855
N	528	1551	588.487	2942.44	16.347	LTRKARFR	7721	3448
O	530	356	135.075	675.38	3.752	PNBLARJE	7803	3358
D	536	2011	937.450	4687.25	26.040	OKCYOKCE	7946	4372
E	538	1252	583.634	2918.17	16.212	TULSOKTS	7708	4176
	540	510	251.267	1256.33	6.980	ELPSTXMA	9231	5655
#	542	444	218.750	1093.75	6.076	MDLDTXMU	8934	4890
5	544	267	131.546	657.73	3.654	LBCKTXPS	8598	4962
	546	433	212.535	1062.67	5.904	AMRLTXDR	8266	5075

List of LATA Numbers served by each Node in the 11-Node Network Configuration

		LATA	Pop.	LATA	AcLiDrBH	CCS	IX	Erlg.	Acc.Pt.	V	H	
Node #	LATA #	(1000)	(1000)	(1000)	(1000)							
Dallas	548	246	121.199	606.00	3.367	WCFLTXNI		8322	4406			
	550	209	102.970	514.85	2.860	ABLNTXOR		8698	4513			
	552	3941	1941.652	9708.26	53.935	DLLSTXTL		8432	4033			
	554	746	363.122	1815.61	10.087	LGVWXTL		8347	3661			
	556	442	217.765	1088.82	6.049	WACOTX01		8702	3966			
	558	703	346.354	1731.77	9.621	AUSTTXGR		9004	3997			
	560	4001	1971.213	9856.06	54.756	HSTNTX01		8946	3550			
	562	483	237.964	1189.82	6.610	BUMTTXTE		8777	3344			
	564	679	334.530	1672.65	9.292	CRCHTXTU		9481	3754			
	566	1561	769.073	3845.37	21.363	SNANTXCA		9225	4063			
	568	610	300.535	1502.67	8.348	HLNLTXAT		9815	3668			
	570	172	84.741	423.70	2.354	BRYNTXXA		8827	3788			
	961	233	114.794	573.97	3.189	SANGTXXA		8944	4563			
Total this Node__		24674	-----			320.806	-----					
Node # 6	664	1399	600.800	3004.00	16.689	ALBQNMMA		8549	5887			
Phoenix	666	2234	1117.679	5588.39	31.047	PHNXAZMA		9133	6748			
	668	729	364.721	1823.61	10.131	TCSNAZMA		9346	6487			
Total this Node__		4362	-----			57.867	-----					
Node # 7	730	12220	6782.357	33911.79	188.399	LSANCA02		9213	7878			
	732	2116	1174.425	5872.12	32.623	SNDGCA01		9468	7630			
	LosAngel.	734	447	248.094	1240.47	6.892	BKFDCA01		8947	8059		
		740	488	270.850	1354.25	7.524	SNLOCA01		9005	8348		
		973	8	4.440	22.20	0.123	PLSPCAXG		9211	7561		
Total this Node__		15279	-----			235.560	-----					
N O D E # 8 SanFranc.	652	777	324.211	1621.05	9.006	BOISIDMA		7094	7866			
		960	161	67.579	337.89	1.877	CRALIDXX		6228	8085		
		670	896	415.889	2079.45	11.552	EUGNOR53		7128	8955		
		672	2047	958.267	4791.33	26.619	PLTDOR62		6799	8915		
		674	2954	1448.078	7240.39	40.224	STTLWA06		6337	8896		
		676	1082	525.928	2629.64	14.609	SPKNWA01		6247	8177		
		720	370	196.544	982.72	5.460	RENONV02		8064	8323		
		721	521	276.756	1383.78	7.688	LSVGNV02		8665	7411		
		722	5877	3261.859	16309.29	90.607	SNFCCA01		8492	8719		
		724	456	253.090	1265.45	7.030	CHICCA01		8059	8668		
		726	1380	765.929	3829.65	21.276	SCRMCA01		8303	8581		
		728	961	533.375	2666.88	14.816	FRSNCA01		8669	8239		
		736	339	188.152	940.76	5.226	SLNSCA01		8723	8561		
		738	798	442.907	2214.53	12.303	SKTNCA01		8435	8531		
Total this Node__		18619	-----			268.293	-----					
N O D E E	636	749	373.314	1866.57	10.370	FARGNDBC		5614	5181			
		638	329	162.226	811.13	4.506	BSMRNDBC		5843	5735		
		640	700	308.000	1540.00	8.556	SXFLSDCO		6278	4901		
		644	1013	486.186	2430.93	13.505	OMAHNENW		6687	4595		
		646	383	186.536	932.68	5.182	GDISNENW		6901	4936		

List of LATA Numbers served by each Node in the 11-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	AcLiOrBH (1000)	CCS IX (1000)	Erlg. Acc.Pt. (1000)	V	H
Denver	958	443	215.758	1078.79	5.993 LNCLNEXL	6823	4674
	648	506	232.190	1160.95	6.450 HLNAMTMA	6339	7350
	650	307	140.874	704.37	3.913 BLNGMTMA	6390	6790
	654	514	235.100	1175.50	6.531 CSPRWYMA	6916	6297
	656	2463	1307.375	6536.88	36.316 DNVRCDMA	7501	5899
	658	676	358.825	1794.12	9.967 CLSPCDMA	7680	5813
	660	1619	656.700	3283.50	18.242 SLKCUTMA	7574	7066
Total this Node__		9702			129.530		
Chicago	320	2139	968.581	4842.91	26.905 CLEVOH02	5575	2544
	322	636	287.993	1439.97	8.000 YNTWOH02	5557	2354
	324	2227	1008.429	5042.15	28.012 CLMBOH11	5972	2554
	325	1256	568.741	2843.71	15.798 AKRNOH25	5637	2472
	326	1290	584.137	2920.69	16.226 TOLDOH21	5703	2820
	328	1187	537.497	2687.48	14.930 DYTNOH15	6112	2704
	922	1706	746.977	3734.88	20.749 CNCNOHWS	6263	2680
	923	653	295.691	1478.46	8.214 MNFDOHXF	5784	2575
	330	369	155.709	778.54	4.325 EVVLIN01	6729	3018
	332	793	334.626	1673.13	9.295 SBNDIN05	5919	3206
	334	530	223.647	1118.23	6.212 HNTNIN01	6008	3013
	336	2042	861.673	4308.36	23.935 IPLSIN01	6272	2992
	338	532	224.491	1122.45	6.236 BLTNIN01	6417	2984
	937	178	75.112	375.56	2.086 RCMDINXB	6157	2813
	938	157	66.250	331.25	1.840 TRRHINXA	6431	3145
	340	5174	2506.272	12531.36	69.619 DTRTMIBH	5536	2829
	342	324	156.886	784.43	4.358 MRQTMIMN	5080	3875
	344	987	478.100	2390.50	13.281 SGNWMIFA	5404	3074
	346	544	263.512	1317.56	7.320 LNNGMIMN	5583	3081
	348	2046	991.077	4955.39	27.530 GDRPMIBL	5628	3261
	350	1128	529.858	2649.29	14.718 APPLWI01	5588	3778
	352	529	248.489	1242.44	6.902 EUCLWI01	5697	4262
	354	931	437.321	2186.61	12.148 MDSNWI11	5888	3796
	356	2158	1013.683	5068.42	28.158 MILWVI48	5788	3588
	358	8173	4086.055	20430.27	113.502 CHCGILCL	5987	3426
	360	362	183.439	917.20	5.096 RCFRILRT	6021	3675
	362	365	184.960	924.80	5.138 CAIRILCF	7042	3168
	364	268	135.806	679.03	3.772 STNGILSI	6158	3714
	366	225	114.016	570.08	3.167 BLTNILXD	6358	3483
	368	506	256.410	1282.05	7.122 PEORILPJ	6362	3592
	370	314	159.116	795.58	4.420 CHMPILCP	6371	3336
	374	391	198.135	990.67	5.504 SPFDILSD	6540	3513
	376	184	93.240	466.20	2.590 QNCYILQY	6642	3791
	976	279	141.380	706.90	3.927 MTONILXC	6503	3291
	977	171	86.652	433.26	2.407 GLBGILXD	6370	3732
	978	167	84.625	423.13	2.351 OLNVIILXE	6623	3172
	620	681	341.272	1706.36	9.480 ROCHMNRO	5916	4326
	624	325	162.869	814.34	4.524 DLTHMNME	5352	4529
	626	413	206.968	1034.84	5.749 STCDMNTO	5721	4703

List of LATA Numbers served by each Node in the 11-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	AcLiOrBH (1000)	CCS (1000)	IX Erlg. (1000)	Acc.Pt.	V	H
	628	2319	1162.130	5810.65	32.281	MPLSMNDT	5780	4526
	630	357	164.551	822.75	4.571	SXCYIADT	6468	4767
	632	1110	510.180	2550.90	14.172	DESMIADT	6472	4275
	634	765	363.107	1815.53	10.086	DVNPIADT	6273	3818
	635	662	304.269	1521.35	8.452	CDRRIADT	6262	4021
Total this Node__		47553	-----	-----	625.109	-----	-----	-----
N	462	588	227.775	1138.87	6.327	LSVLKYCS	6529	2773
O	464	678	252.288	1261.44	7.008	OWBOKYMA	6731	2927
D	466	1399	520.576	2602.88	14.460	LXTNKYXA	6472	2555
E	520	3344	1601.054	8005.27	44.474	STLSM009	6807	3483
	521	194	91.332	456.66	2.537	JFCYMOXA	6963	3782
#	522	684	322.017	1610.08	8.945	SPFDMOTL	7311	3833
11	524	2048	968.190	4840.95	26.894	KSCYMO09	7029	4202
St.Louis	532	1122	536.154	2680.77	14.893	WCHTKSBR	7489	4520
	534	721	344.534	1722.67	9.570	TPKAKSJA	7110	4369
Total this Node__		10778	-----	-----	135.109	-----	-----	-----

Avg. IX-Traffic/Node: 284,291

EXHIBIT 5.11 11-NODE TRAFFIC MATRIX

Node-to-Node Traffic in 11-Node Network Configuration											
From Node #	To Node #										Totl.Origtg.Traf. from Node #
	1	2	3	4	5	6	7	8	9	10	11
1	0.0	50972.9	36217.8	79710.7	31909.1	5375.1	14742.8	18116.1	16107.6	115423.1	22456.0
2	44407.8	0.0	15908.2	32419.5	11740.4	2200.8	5347.7	6715.7	6206.0	45375.1	8843.4
3	34316.7	16984.9	0.0	31240.8	10758.1	2313.9	5068.2	5916.0	5443.1	39765.4	8339.6
4	68621.1	30339.9	28342.1	0.0	37505.7	6636.2	17086.7	18525.0	15368.8	99311.9	26132.0
5	45637.6	16609.1	15037.7	56540.1	0.0	6498.2	17650.5	20916.6	2789.6	69243.4	18139.2
6	5965.0	2754.5	2614.0	8806.6	6124.5	0.0	5688.1	5650.6	3122.9	11404.8	2894.1
7	23393.4	9387.6	7996.0	32255.1	22485.8	7833.3	0.0	32887.0	14070.6	52279.3	12336.4
8	26522.8	10853.3	9178.5	30796.0	24648.7	7280.0	30527.8	0.0	15697.5	55149.4	13403.9
9	16599.9	7067.6	5959.3	18622.3	11924.1	2850.5	9199.6	11101.6	0.0	29038.9	7166.2
10	96294.6	41906.1	35207.3	105774.6	45361.9	8378.5	27565.8	31701.5	23744.8	0.0	33980.8
11	18492.4	8112.5	7336.2	18545.6	12150.8	2167.3	6506.4	7715.1	5915.2	33089.1	0.0
Totl.Termtg.Traf. 380251.3 194988.2 163797.0 414711.1 214609.0 51533.88 139383.6 159245.0 108465.9 550080.4 153691.5											
in Node #											
	1	2	3	4	5	6	7	8	9	10	11

Total Busy Hour Traffic: 2530757. Erlang
% of All Traffic: 80.93%

EXHIBIT 5.12 NODE LOCATIONS IN 15-NODE NETWORK

List of Access Nodes in the 15-Node Network

Node #	LATA #	CLLI	Coordinates	
			V	H
1	132	NYCMNY54	4992	1410
2	228	PHLAPAMK	5250	1459
3	236	WASHDCSW	5623	1578
4	438	ATLNGATL	7259	2084
5	552	DLLSTXTL	8432	4033
6	666	PHNXAZMA	9133	6748
7	730	LSANCA02	9213	7878
8	722	SNFCCA01	8492	8719
9	656	DNVRCOMA	7501	5899
10	368	CHCGILCL	5987	3426
11	520	STLSMD09	6807	3483
12	460	QJUSFLTL	8320	538
13	674	STTLWA06	6337	8896
14	628	MPLSMNDT	5780	4526
15	128	BSTNMAFR	4422	1248

EXHIBIT 5.13

Map of 15-Node Network Configuration

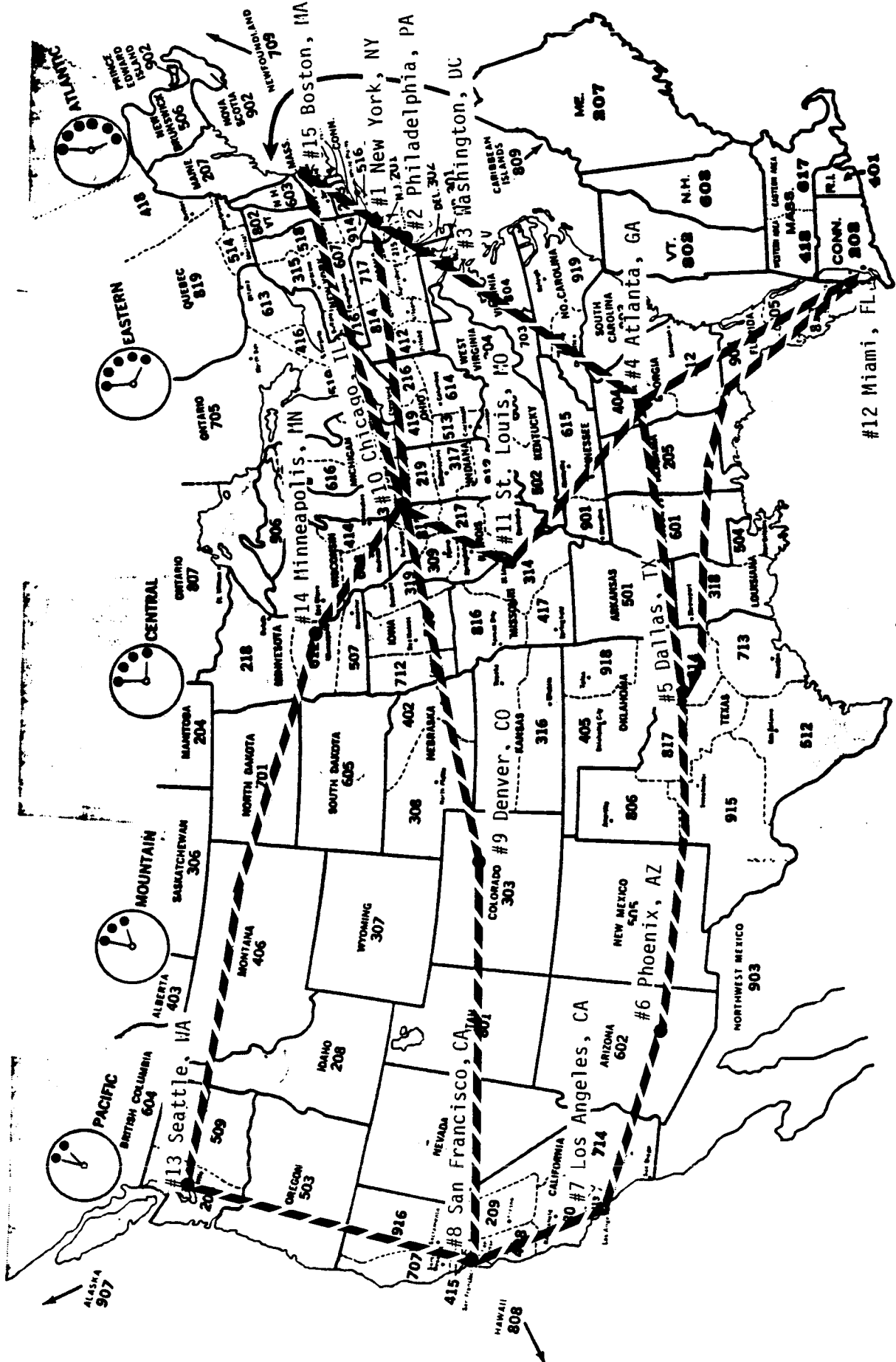


EXHIBIT 5.14 LINKS IN 15-NODE NETWORK

List of Links between the 15 Network Nodes

From to Node #	Type	From LATA #	To LATA #	Distance miles
15 to 1	East NS	128	132	187.39
1 to 2	East NS	132	228	83.05
2 to 3	East NS	228	236	123.81
3 to 4	East NS	236	438	541.53
4 to 12	East NS	438	460	592.94
12 to 5	South	460	552	1105.78
4 to 5	South	438	552	719.34
5 to 6	South	552	666	886.71
6 to 7	South	666	730	358.23
7 to 8	West NS	730	722	350.30
8 to 13	West NS	722	674	683.77
13 to 14	North	674	628	1393.10
14 to 10	North	628	358	353.96
10 to 15	North	358	128	848.11
8 to 9	Central	722	656	945.22
9 to 10	Central	656	358	916.95
10 to 1	Central	358	132	710.93
10 to 11	Cross	358	520	259.93
11 to 4	Cross	520	438	464.92

List of LATA Numbers served by each Node in the 15-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	DrBH CCS (1000)	IX Erlg. (1000)	Acc.Pnt.	V	H
Node #15	120	1146	496.400	2482.00	13.789	PTLDMEPO	3999	1526
	122	958	470.100	2350.50	13.058	MNCHNHCO	4385	1343
	124	526	245.000	1225.00	6.806	BURLVTMA	4270	1808
	126	795	403.648	2018.24	11.212	SPFDMAWD	4620	1408
Boston	128	4970	2523.436	12617.18	70.095	BSTNMAFR	4422	1248
	130	955	437.100	2185.50	12.142	PRVDMAWA	4550	1219
Total this Node		9350			127.102			
N	920	3077	1585.091	7925.46	44.030	HRFRCT03	4687	1373
O	132	11006	5837.611	29188.05	162.156	NYCMNY54	4992	1410
D	133	737	390.968	1954.84	10.860	PGHKNYSH	4822	1525
E	134	1257	666.821	3334.11	18.523	ALBYNYSS	4639	1629
	136	1546	820.132	4100.66	22.781	SYRCNYSU	4797	1990
#	138	628	333.145	1665.73	9.254	BNGHNYHY	4943	1837
1	140	1603	850.369	4251.85	23.621	BFLONYFR	5076	2327
	974	951	504.492	2522.46	14.014	ROCHNYXA	4913	2195
New York	224	5612	3213.674	16068.37	89.269	NWRKNJ02	5016	1430
Total this Node		26417			394.508			
N	220	285	163.203	816.02	4.533	ATCYNJAC	5284	1284
O	222	1570	899.050	4495.25	24.974	TRENNJTN	5156	1440
D	226	1472	712.030	3560.15	19.779	HRBGPAHA	5363	1733
E	228	5122	2508.461	12542.30	69.679	PHLAPAMK	5250	1459
	230	986	476.944	2384.72	13.248	ALNAPAAL	5460	1972
#	232	1487	719.285	3596.43	19.980	SCTNPASC	5042	1715
2	234	2996	1449.213	7246.06	40.256	PITBPADG	5619	2184
Philadel.	924	435	210.416	1052.08	5.845	ERIEPAXH	5321	2397
Total this Node		14353			198.295			
N	236	3270	2127.661	10638.31	59.102	WASHDCSW	5623	1578
	238	2307	1229.543	6147.71	34.154	BLTMDCH	5511	1574
	240	453	222.927	1114.63	6.192	HGTWMDHG	5555	1772
	242	241	128.444	642.22	3.568	SLBRMDSB	5577	1316
D	244	921	441.781	2208.91	12.272	RONKVALX	6196	1802
	246	276	132.390	661.95	3.678	CLPPVACU	5791	1666
E	248	1033	495.505	2477.52	13.764	RCMDVAGR	5906	1472
	250	342	164.049	820.25	4.557	LYBGVACH	6094	1703
#	252	1304	625.497	3127.49	17.375	NRFLVABS	5917	1223
3	927	78	37.415	187.07	1.039	HRBGVAXA	5879	1787
	928	117	56.122	280.61	1.559	CHVLVAXA	5919	1683
Wash.DC	929	28	13.431	67.15	0.373	EDBGVAXA	5783	1789
	254	1054	393.601	1968.00	10.933	CHTNWVLE	6152	2174
	256	678	253.189	1265.95	7.033	CLBGWVMA	5864	2096
	932	123	45.933	229.66	1.276	BLFDWVXA	6315	1990
Total this Node		12225			176.875			
	420	467	203.961	1019.81	5.666	AHVLNCOH	6747	2001
	422	1873	810.789	4053.95	22.522	CHRLNCCA	6657	1698
	424	1160	506.627	2533.14	14.073	GNBONCEU	6402	1639
	426	777	339.353	1696.77	9.426	RLGHNCMO	6344	1434
	428	361	157.666	788.33	4.380	WLMGNCFO	6657	1145

List of LATA Numbers served by each Node in the 15-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	DrBH CCS (1000)	IX Erlg. (1000)	Acc.Pnt.	V	H
N	949	725	316.642	1583.21	8.796	FYVLNCXA	6501	1385
O	951	868	379.097	1895.49	10.530	RCMTNCXA	6232	1329
D	430	1020	401.611	2008.05	11.156	GNVLSCDT	6872	1895
E	432	626	246.104	1230.52	6.836	FLRNSCMA	6745	1417
	434	795	312.544	1562.72	8.682	CLMASCTL	6902	1588
#	436	509	200.107	1000.53	5.559	CHTNSCDT	7022	1279
4	438	3513	1586.734	7933.67	44.076	ATLNGATL	7259	2084
	440	642	289.975	1449.88	8.055	SVNHGABS	7269	1379
	442	462	202.235	1011.17	5.618	AGSTGAMT	7090	1675
Atlanta	444	620	280.038	1400.19	7.779	ALBYGAMA	7650	1816
	446	488	220.417	1102.09	6.123	MACNGAMT	7364	1866
	468	1388	602.421	3012.11	16.734	MMPHTNMA	7471	3127
	470	1572	689.029	3445.15	19.140	NSVLTNMT	7009	2711
	472	542	238.996	1194.98	6.639	CHTGTNMA	7098	2366
	474	963	422.096	2110.48	11.725	KNVLTNMA	6801	2251
	956	583	264.140	1320.70	7.337	BRSTTNXA	6529	2056
	476	1632	630.416	3152.08	17.512	BRHMALMT	7518	2446
	477	790	305.165	1525.82	8.477	HNVLALNT	7267	2534
	478	949	366.584	1832.92	10.183	MTGMALTT	7492	2247
	480	581	224.431	1122.16	6.234	MOBLALMT	8167	2367
	482	2238	750.127	3750.64	20.837	JCSNMSPS	8035	2880
	484	318	106.143	530.72	2.948	GLPTMSTS	8318	2511
Total this Node		26462			307.041			
N	448	456	220.993	1104.97	6.139	PNSCFLBL	8147	2200
O	450	259	125.520	627.60	3.487	PNCYFLMA	8058	1914
D	452	975	472.519	2362.59	13.126	JCVLFLCL	7647	1276
E	454	617	299.020	1495.10	8.306	GSLVFLAN	7838	1310
	456	302	146.360	731.80	4.066	DYBHFLMA	7791	1052
#	458	1101	533.583	2667.91	14.822	ORLDFLMA	7954	1032
12	460	3698	1792.180	8960.90	49.783	OJUSFTLTL	8320	538
	939	624	302.412	1512.06	8.400	FTMYFLXA	8359	904
	952	2447	1185.901	5929.51	32.942	TAMPFLXA	8172	1147
Miami	953	201	97.412	487.06	2.706	TLHSFLXA	7877	1716
Total this Node		10680			143.775			
	486	1147	479.502	2397.51	13.319	SHPTLATL	8271	3493
	488	912	381.260	1906.30	10.591	LFYTLAMA	8587	2997
	490	740	309.356	1546.78	8.593	NWORLAMA	8482	2638
	492	656	274.240	1371.20	7.618	BTRGLAMA	8476	2874
	526	369	140.008	700.04	3.889	FTSMARSU	7752	3855
N	528	1551	588.487	2942.44	16.347	LTRKARFR	7721	3448
O	530	356	135.075	675.38	3.752	PNBLARJE	7803	3358
D	536	2011	937.450	4687.25	26.040	OKCYOKCE	7946	4372
E	538	1252	583.634	2918.17	16.212	TULSOKTS	7708	4176
	540	510	251.267	1256.33	6.980	ELPSTXMA	9231	5655
#	542	444	218.750	1093.75	6.076	MDLDTXMU	8934	4890
5	544	267	131.546	657.73	3.654	LBCKTXPS	8598	4962
	546	433	212.535	1062.67	5.904	AMRLTXDR	8266	5075
	548	246	121.199	606.00	3.367	WCFLTXXNI	8322	4406
Dallas	550	209	102.970	514.85	2.860	ABLNTXOR	8698	4513

List of LATA Numbers served by each Node in the 15-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	DrBH CCS (1000)	IX Erlg. (1000)	Acc.Pnt.	V	H
	552	3941	1941.652	9708.26	53.935	DLLSTXTL	8432	4033
	554	746	363.122	1815.61	10.087	LGVWXTL	8347	3661
	556	442	217.765	1088.82	6.049	WACOTX01	8702	3966
	558	703	346.354	1731.77	9.621	AUSTTXGR	9004	3997
	560	4001	1971.213	9856.06	54.756	HSTNTX01	8946	3550
	562	483	237.964	1189.82	6.610	BUMTTXTE	8777	3344
	564	679	334.530	1672.65	9.292	CRCHTXTU	9481	3754
	566	1561	769.073	3845.37	21.363	SNANTXCA	9225	4063
	568	610	300.535	1502.67	8.348	HRLNTXAT	9815	3668
	570	172	84.741	423.70	2.354	BRYNTXXA	8827	3788
	961	233	114.794	573.97	3.189	SANGTXXA	8944	4563
Total this Node		24674			320.806			
	664	1399	600.800	3004.00	16.689	ALBQNMMA	8549	5887
Node #6	666	2234	1117.679	5588.39	31.047	PHNXAZMA	9133	6748
Phoenix	668	729	364.721	1823.61	10.131	TCSNAZMA	9346	6487
Total this Node		4362			57.867			
	730	12220	6782.357	33911.79	188.399	LSANCA02	9213	7878
Node #7	732	2116	1174.425	5872.12	32.623	SNDGCA01	9468	7630
LosAngel.	734	447	248.094	1240.47	6.892	BKFDCA01	8947	8059
	740	488	270.850	1354.25	7.524	SNLOCA01	9005	8348
	973	8	4.440	22.20	0.123	PLSPCAXG	9211	7561
Total this Node		15279			235.560			
N	720	370	196.544	982.72	5.460	RENONV02	8064	8323
O	721	521	276.756	1383.78	7.688	LSVGNV02	8665	7411
D	722	5877	3261.859	16309.29	90.607	SNFCCA01	8492	8719
E	724	456	253.090	1265.45	7.030	CHICCA01	8059	8668
	726	1380	765.929	3829.65	21.276	SCRMCA01	8303	8581
#	728	961	533.375	2666.88	14.816	FRSNCA01	8669	8239
8	736	339	188.152	940.76	5.226	SLNSCA01	8723	8561
SanFranc.	738	798	442.907	2214.53	12.303	SKTNCA01	8435	8531
Total this Node		10702			164.406			
	652	777	324.211	1621.05	9.006	BOISIDMA	7094	7866
Node #13	960	161	67.579	337.89	1.877	CRALIDXX	6228	8085
	670	896	415.889	2079.45	11.552	EUGNOR53	7128	8955
Seattle	672	2047	958.267	4791.33	26.619	PLTDOR62	6799	8915
	674	2954	1448.078	7240.39	40.224	STTLWA06	6337	8896
	676	1082	525.928	2629.64	14.609	SPKNWA01	6247	8177
Total this Node		7917			103.888			
	620	681	341.272	1706.36	9.480	ROCHMNRO	5916	4326
Node #14	624	325	162.869	814.34	4.524	DLTHMNME	5352	4529
	626	413	206.968	1034.84	5.749	STCDMNTO	5721	4703
Mpls.St.P	628	2319	1162.130	5810.65	32.281	MPLSMNDT	5780	4526
	630	357	164.551	822.75	4.571	SXCYIADT	6468	4767
	632	1110	510.180	2550.90	14.172	DESMIADT	6472	4275
	634	765	363.107	1815.53	10.086	DVNPIADT	6273	3818
	635	662	304.269	1521.35	8.452	CDRRIADT	6262	4021

List of LATA Numbers served by each Node in the 15-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	DrBH CCS (1000)	IX Erlg. (1000)	Acc.Pnt.	V	H
Total this Node		6632			89.315			
N O D E # 9 Denver	636	749	373.314	1866.57	10.370	FARGNDBC	5614	5181
	638	329	162.226	811.13	4.506	BSMRNDBC	5843	5735
	640	700	308.000	1540.00	8.556	SXFLSDCO	6278	4901
	644	1013	486.186	2430.93	13.505	OMAHNENW	6687	4595
	646	383	186.536	932.68	5.182	GDISNENW	6901	4936
	958	443	215.758	1078.79	5.993	LNCLNEXL	6823	4674
	648	506	232.190	1160.95	6.450	HLNAMTMA	6339	7350
	650	307	140.874	704.37	3.913	BLNGMTMA	6390	6790
	654	514	235.100	1175.50	6.531	CSPRWYMA	6916	6297
	656	2463	1307.375	6536.88	36.316	DNVRCOMA	7501	5899
Total this Node	658	676	358.825	1794.12	9.967	CLSPCOMA	7680	5813
	660	1619	656.700	3283.50	18.242	SLKCUTMA	7574	7066
Total this Node		9702			129.530			
N O D E # 10 Chicago	320	2139	968.581	4842.91	26.905	CLEVOH02	5575	2544
	322	636	287.993	1439.97	8.000	YNTWOH02	5557	2354
	324	2227	1008.429	5042.15	28.012	CLMBOH11	5972	2554
	325	1256	568.741	2843.71	15.798	AKRNOH25	5637	2472
	326	1290	584.137	2920.69	16.226	TOLD0H21	5703	2820
	328	1187	537.497	2687.48	14.930	DYTNOH15	6112	2704
	922	1706	746.977	3734.88	20.749	CNCNOHWS	6263	2680
	923	653	295.691	1478.46	8.214	MNFDOHXF	5784	2575
	330	369	155.709	778.54	4.325	EVVLIN01	6729	3018
	332	793	334.626	1673.13	9.295	SBNDINO5	5919	3206
	334	530	223.647	1118.23	6.212	HNTNIN01	6008	3013
	336	2042	861.673	4308.36	23.935	IPLSIN01	6272	2992
	338	532	224.491	1122.45	6.236	BLTNIN01	6417	2984
	937	178	75.112	375.56	2.086	RCMDINXB	6157	2813
	938	157	66.250	331.25	1.840	TRRHINXA	6431	3145
	340	5174	2506.272	12531.36	69.619	DTRTMIBH	5536	2829
	342	324	156.886	784.43	4.358	MRQTMIMN	5080	3875
	344	987	478.100	2390.50	13.281	SGNWMIFA	5404	3074
	346	544	263.512	1317.56	7.320	LNNGMIMN	5583	3081
	348	2046	991.077	4955.39	27.530	GDRPMIBL	5628	3261
	350	1128	529.858	2649.29	14.718	APPLWI01	5588	3778
	352	529	248.489	1242.44	6.902	EUCLWI01	5697	4262
	354	931	437.321	2186.61	12.148	MDSNWI11	5888	3796
	356	2158	1013.683	5068.42	28.158	MILWWI48	5788	3588
	358	8173	4086.055	20430.27	113.502	CHCGILCL	5987	3426
	360	362	183.439	917.20	5.096	RCFRILRT	6021	3675
	362	365	184.960	924.80	5.138	CAIRILCF	7042	3168
	364	268	135.806	679.03	3.772	STNGILSI	6158	3714
	366	225	114.016	570.08	3.167	BLTNILXD	6358	3483
	368	506	256.410	1282.05	7.122	PEORILPJ	6362	3592
	370	314	159.116	795.58	4.420	CHMPILCP	6371	3336
	374	391	198.135	990.67	5.504	SPFDILSD	6540	3513
	376	184	93.240	466.20	2.590	QNCYILQY	6642	3791
	976	279	141.380	706.90	3.927	MTONILXC	6503	3291
	977	171	86.652	433.26	2.407	GLBGILXD	6370	3732

List of LATA Numbers served by each Node in the 15-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	OrBH (1000)	CCS (1000)	IX Erlg. (1000)	Acc.Pnt.	V	H
	978	167	84.625	423.13		2.351	OLNYILXE	6623	3172
Total this Node		40921				535.794			
N	462	588	227.775	1138.87		6.327	LSVLKYCS	6529	2773
O	464	678	252.288	1261.44		7.008	OWBOKYMA	6731	2927
D	466	1399	520.576	2602.88		14.460	LXTNKYXA	6472	2555
E	520	3344	1601.054	8005.27		44.474	STLSMO09	6807	3483
	521	194	91.332	456.66		2.537	JFCYMOXA	6963	3782
#	522	684	322.017	1610.08		8.945	SPFDMOTL	7311	3833
11	524	2048	968.190	4840.93		26.894	KSCYMO09	7029	4202
	532	1122	536.154	2680.77		14.893	WCHTKSBR	7489	4520
St.Louis	534	721	344.534	1722.67		9.570	TPKAKSJA	7110	4369
Total this Node		10778				135.109			

Avg. IX-Traffic/Node: 208,480

EXHIBIT 5.16 15-NODE TRAFFIC MATRIX Page 1 of 2

		Node-to-Node Traffic in the 15-Node Network Configuration												
From Node #		1	2	3	4	5	6	7	8	9				
1	0.0	39441.6	28199.9	47656.5	24147.1	4095.4	11129.5	7812.3	12420.6					
2	34937.5	0.0	15908.2	24128.4	11740.4	2200.8	5347.7	3786.5	6206.0					
3	26227.6	16984.9	0.0	22900.4	10758.1	2313.9	5068.2	3365.4	5443.1					
4	36093.2	20746.5	19011.6	0.0	24873.4	4308.3	12163.5	7334.5	10420.8					
5	29660.1	16609.1	15037.7	41075.1	0.0	6498.2	17650.5	12141.5	2789.6					
6	4455.2	2754.5	2789.6	6289.9	6124.5	0.0	5688.1	3656.1	3122.9					
7	17278.1	9387.6	7996.0	24823.1	22485.8	7833.3	0.0	20203.4	14070.6					
8	11866.3	3347.7	5526.8	14699.8	15081.4	4951.8	19775.1	0.0	9683.3					
9	12524.6	7067.6	5959.3	13779.1	11924.1	2850.5	9199.6	6471.2	0.0					
10	63172.1	36081.9	30282.7	68194.2	38109.1	6943.0	23117.6	14502.2	19386.1					
11	14102.6	8112.5	7336.2	17146.8	12150.8	2167.3	6506.4	4453.2	5915.2					
12	15665.8	9593.4	9330.5	21518.3	12632.2	2328.0	4923.2	3327.6	4948.0					
13	7770.7	4355.5	3651.7	9407.7	9567.4	2328.3	10752.7	7903.3	6014.2					
14	9240.6	5824.2	4924.6	10667.3	7252.8	1435.5	4448.2	3115.7	4358.7					
15	24711.5	11531.4	8018.0	14355.9	7761.9	1279.7	3613.3	2530.9	3687.0					

Totl. Termtg. Traf. 307705.8 191838.1 163972.7 336642.6 214609.1 51533.9 139383.6 100603.7 108466.0
in Node # 1 2 3 4 5 6 7 8 9

Total Busy Hour Traffic: 2668828. Erlang
% of all IX Traffic: 85.34%

EXHIBIT 5.16 15-NODE TRAFFIC MATRIX Page 2 of 2

Node-to-Node Traffic in the 15-Node Network Configuration										Totl.Origtg.Traf.	
From Node #	To Node #									15	from Node #
1	78014.6	17439.5	15276.9	5900.6	10196.6	26489.1	328220.0	1			
2	39715.1	8843.4	8291.1	2929.2	5660.0	9705.7	179399.9	2			
3	34750.1	8339.6	8340.4	2550.6	5015.3	8089.1	160146.7	3			
4	59707.3	16110.7	15890.5	5423.7	8903.4	11838.9	252826.2	4			
5	59374.8	18139.2	15464.9	8775.1	9868.6	10376.8	263461.2	5			
6	9672.8	2894.1	2516.7	1994.5	1732.0	1509.8	55200.6	6			
7	44688.4	12336.4	7432.0	12683.6	7590.9	6115.4	214924.6	7			
8	27307.8	8202.1	4887.4	9103.3	5203.3	4191.9	143827.8	8			
9	24240.7	7166.2	4843.2	4630.4	4798.2	4075.3	119529.9	9			
10	0.0	28878.3	23712.6	11773.6	17021.0	21068.7	402243.0	10			
11	28447.5	0.0	5590.4	3261.9	4641.6	4389.8	124222.1	11			
12	27059.0	7111.2	0.0	2439.2	3642.2	5023.2	129541.8	12			
13	19288.3	5201.8	3107.7	0.0	3350.0	2693.9	95393.1	13			
14	19155.8	5102.6	3200.4	2310.0	0.0	2813.3	83849.5	14			
15	24371.7	5016.5	4451.3	1872.3	2840.3	0.0	116041.6	15			

Totl. Termtg. Traf. 495793.9 150781.5 123005.4 75648.0 90463.3 118380.7
in Node # 10 11 12 13 14 15

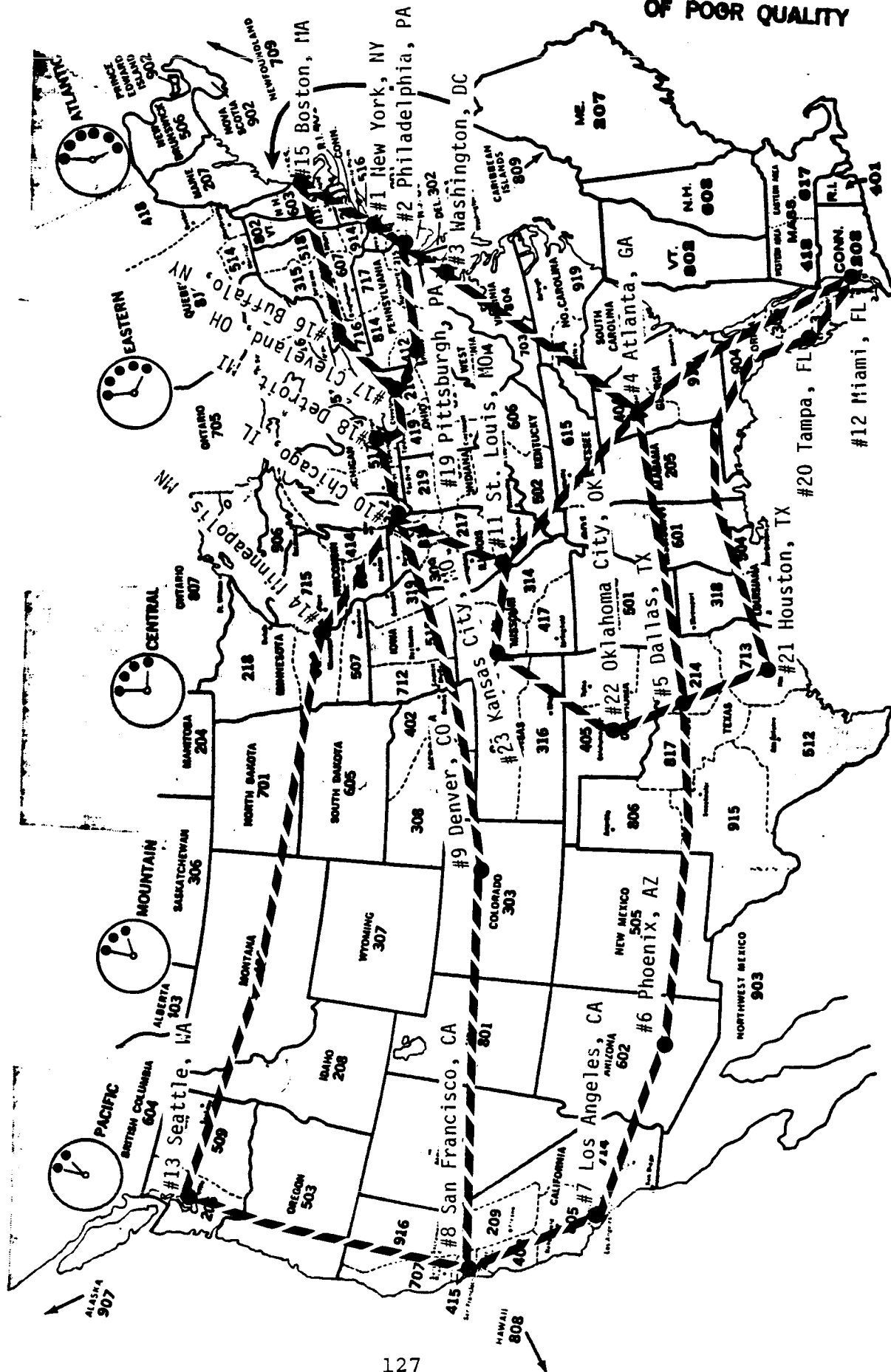
EXHIBIT 5.17 NODE LOCATIONS IN 23-NODE NETWORK

List of Access Nodes in the 23-Node Network

Node #	LATA #	CLLI	Coordinates	
			V	H
1	132	NYCMNY54	4992	1410
2	228	PHLAPAMK	5250	1459
3	236	WASHDCSW	5623	1578
4	438	ATLNGATL	7259	2084
5	552	DLLSTXTL	8432	4033
6	666	PHNXAZMA	9133	6748
7	730	LSANCA02	9213	7878
8	722	SNFCCA01	8492	8719
9	656	DNVRCOMA	7501	5899
10	368	CHCGILCL	5987	3426
11	520	STLSMD09	6807	3483
12	460	OJUSFLTL	8320	538
13	674	STTLWA06	6337	8896
14	628	MPLSMNDT	5780	4526
15	128	BSTNMAFR	4422	1248
16	140	BFLONYFR	5076	2327
17	320	CLEVOH02	5575	2544
18	340	DTRTMIBH	5536	2829
19	234	PITBPADG	5619	2184
20	952	TAMPFLXA	8172	1147
21	560	HSTNTX01	8946	3550
22	536	OKCYOKCE	7946	4372
23	524	KSCYMD09	7029	4202

EXHIBIT 5.18

Map of 23-Node Network Configuration



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OF POOR QUALITY

EXHIBIT 5.19 LINKS IN 23-NODE NETWORK

List of Links between the 23 Network Nodes

From to Node #	Type	From LATA #	To LATA #	Distance miles
15 to 16	North	128	140	398.99
16 to 17	North	140	320	172.07
17 to 18	North	320	340	90.96
18 to 10	North	340	358	236.60
15 to 1	East NS	128	132	187.39
1 to 2	East NS	132	228	83.05
2 to 19	North	228	234	257.25
19 to 17	North	234	320	114.69
2 to 3	East NS	228	236	123.81
3 to 4	East NS	236	438	541.53
4 to 12	East NS	438	460	592.94
4 to 5	South	438	552	719.34
4 to 11	Cross	438	520	464.92
11 to 10	Cross	520	358	259.93
22 to 23	Cross	536	524	294.92
5 to 22	Cross	552	536	187.38
12 to 20	South	460	952	198.19
20 to 21	South	952	560	798.34
21 to 5	South	560	552	223.04
5 to 6	South	552	666	886.71
6 to 7	South	666	730	358.23
7 to 8	West NS	730	722	350.30
8 to 13	West NS	722	674	683.77
13 to 14	North	674	628	1393.10
14 to 10	North	628	358	353.96
8 to 9	Central	722	656	945.22
9 to 10	Central	656	358	916.95

List of LATA Numbers served by each Node in the 23-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	DrBH CCS (1000)	IX Erlg. (1000)	Accs.Pnt.	V	H	
Node # 15	120	1146	496.400	2482.00	13.789	PTLDMEPD	3999	1526	
	122	958	470.100	2350.50	13.058	MNCHNHCO	4385	1343	
	124	526	245.000	1225.00	6.806	BURLVTMA	4270	1808	
	126	795	403.648	2018.24	11.212	SPFDMAWO	4620	1408	
	128	4970	2523.436	12617.18	70.095	BSTNMAFR	4422	1248	
Boston	130	955	437.100	2185.50	12.142	PRVDMAWA	4550	1219	
	Total this Node	9350			127.102				
Node # 1	920	3077	1585.091	7925.46	44.030	HRFRCT03	4687	1373	
	132	11006	5837.611	29188.05	162.156	NYCMNY54	4992	1410	
	133	737	390.968	1954.84	10.860	PGHKNYSH	4822	1525	
	134	1257	666.821	3334.11	18.523	ALBYNYSS	4639	1629	
	224	5612	3213.674	16068.37	89.269	NWRKNJ02	5016	1430	
	Total this Node	21689			324.838				
Node # 16	136	1546	820.132	4100.66	22.781	SYRCNYSU	4797	1990	
	138	628	333.145	1665.73	9.254	BNGHNYHY	4943	1837	
	140	1603	850.369	4251.85	23.621	BFLONYFR	5076	2327	
	974	951	504.492	2522.46	14.014	ROCHNYXA	4913	2195	
	Total this Node	4728			69.671				
Node # 2	220	285	163.203	816.02	4.533	ATCYNJAC	5284	1284	
	222	1570	899.050	4495.25	24.974	TRENNJTN	5156	1440	
	226	1472	712.030	3560.15	19.779	HRBGPAHA	5363	1733	
	228	5122	2508.461	12542.30	69.679	PHLAPAMK	5250	1459	
	230	986	476.944	2384.72	13.248	ALNAPAAL	5460	1972	
	232	1487	719.285	3596.43	19.980	SCTNPASC	5042	1715	
	Total this Node	10922			152.194				
Node # 19	234	2996	1449.213	7246.06	40.256	PITBPADG	5619	2184	
	Pittsbrg.	924	435	210.416	1052.08	ERIEPAXH	5321	2397	
	Total this Node	3431			46.101				
Node # 3	N	236	3270	2127.661	10638.31	59.102	WASHDCSW	5623	1578
	O	238	2307	1229.543	6147.71	34.154	BLTMDCH	5511	1574
	D	240	453	222.927	1114.63	6.192	HGTWMDHG	5555	1772
	E	242	241	128.444	642.22	3.568	SLBRMDSB	5577	1316
		244	921	441.781	2208.91	12.272	RONKVALX	6196	1802
	#	246	276	132.390	661.95	3.678	CLPPVACU	5791	1666
	3	248	1033	495.505	2477.52	13.764	RCMDVAGR	5906	1472
		250	342	164.049	820.25	4.557	LYBGVACH	6094	1703
	Wash.DC	252	1304	625.497	3127.49	17.375	NRFLVABS	5917	1223
		927	78	37.415	187.07	1.039	HRBGVAXA	5879	1787
		928	117	56.122	280.61	1.559	CHVLVAXA	5919	1683
		929	28	13.431	67.15	0.373	EDBGVAXA	5783	1789
		254	1054	393.601	1968.00	10.933	CHTNWVLE	6152	2174
		256	678	253.189	1265.95	7.033	CLBGWVMA	5864	2096
		932	123	45.933	229.66	1.276	BLFDWVXA	6315	1990
	Total this Node	12225			176.875				
	320	2139	968.581	4842.91	26.905	CLEVDH02	5575	2544	

List of LATA Numbers served by each Node in the 23-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	DrBH (1000)	CCS IX (1000)	Erlg. Accs. (1000)	Pnt. V	H
Node # 17	322	636	287.993	1439.97	8.000	YNTWQH02	5557	2354
	324	2227	1008.429	5042.15	28.012	CLMBOH11	5972	2554
	325	1256	568.741	2843.71	15.798	AKRNOH25	5637	2472
	326	1290	584.137	2920.69	16.226	TOLDQH21	5703	2820
	328	1187	537.497	2687.48	14.930	DYTNQH15	6112	2704
Cleveland	922	1706	746.977	3734.88	20.749	CNCNOHWS	6263	2680
	923	653	295.691	1478.46	8.214	MNFDOHXF	5784	2575
Total this Node		11094			138.835			
Node # 18	330	369	155.709	778.54	4.325	EVVLIN01	6729	3018
	332	793	334.626	1673.13	9.295	SBNDIN05	5919	3206
	334	530	223.647	1118.23	6.212	HNTNIN01	6008	3013
	336	2042	861.673	4308.36	23.935	IPLSIN01	6272	2992
	338	532	224.491	1122.45	6.236	BLTNIN01	6417	2984
	937	178	75.112	375.56	2.086	RCMDINXB	6157	2813
	938	157	66.250	331.25	1.840	TRRHINXA	6431	3145
	350	1128	529.858	2649.29	14.718	APPLWI01	5588	3778
	352	529	248.489	1242.44	6.902	EUCLWI01	5697	4262
	354	931	437.321	2186.61	12.148	MDSNWI11	5888	3796
	356	2158	1013.683	5068.42	28.158	MILWWI48	5788	3588
	358	8173	4086.055	20430.27	113.502	CHCGILCL	5987	3426
	360	362	183.439	917.20	5.096	RCFRILRT	6021	3675
	362	365	184.960	924.80	5.138	CAIRILCF	7042	3168
	364	268	135.806	679.03	3.772	STNGILSI	6158	3714
Chicago	366	225	114.016	570.08	3.167	BLTNILXD	6358	3483
	368	506	256.410	1282.05	7.122	PEORILPJ	6362	3592
	370	314	159.116	795.58	4.420	CHMPILCP	6371	3336
	374	391	198.135	990.67	5.504	SPFDILSD	6540	3513
	376	184	93.240	466.20	2.590	QNCYILQY	6642	3791
	976	279	141.380	706.90	3.927	MTONILXC	6503	3291
	977	171	86.652	433.26	2.407	GLBGILXD	6370	3732
	978	167	84.625	423.13	2.351	OLNYILXE	6623	3172
Total this Node		20752			274.853			
Node # 18	340	5174	2506.272	12531.36	69.619	DTRTMIBH	5536	2829
	342	324	156.886	784.43	4.358	MRQTMIMN	5080	3875
	344	987	478.100	2390.50	13.281	SGNWMIFA	5404	3074
	346	544	263.512	1317.56	7.320	LNNGMIMN	5583	3081
	348	2046	991.077	4955.39	27.530	GDRPMIBL	5628	3261
Total this Node		9075			122.107			
Node # 18	420	467	203.961	1019.81	5.666	AHVLNCOH	6747	2001
	422	1873	810.789	4053.95	22.522	CHRLNCCA	6657	1698
	424	1160	506.627	2533.14	14.073	GNBONCEU	6402	1639
	426	777	339.353	1696.77	9.426	RLGHNCMO	6344	1434
	428	361	157.666	788.33	4.380	WLMGNCFO	6657	1145
	949	725	316.642	1583.21	8.796	FYVLNCXA	6501	1385
	951	868	379.097	1895.49	10.530	RCMTNCXA	6232	1329
	#	430	1020	401.611	2008.05	GNVLSCDT	6872	1895
	432	626	246.104	1230.52	6.836	FLRNSCMA	6745	1417
	4	434	795	312.544	1562.72	CLMASCTL	6902	1588

List of LATA Numbers served by each Node in the 23-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	AcLiOrBH (1000)	CCS (1000)	IX Erlg. (1000)	Accs.Pnt.	V	H
Atlanta	436	509	200.107	1000.53	5.559	CHTNSCDT	7022	1279
	438	3513	1586.734	7933.67	44.076	ATLNGATL	7259	2084
	440	642	289.975	1449.88	8.055	SVNHGABS	7269	1379
	442	462	202.235	1011.17	5.618	AGSTGAMT	7090	1675
	444	620	280.038	1400.19	7.779	ALBYGAMA	7650	1816
	446	488	220.417	1102.09	6.123	MACNGAMT	7364	1866
	468	1388	602.421	3012.11	16.734	MMPHTNMA	7471	3127
	470	1572	689.029	3445.15	19.140	NSVLTNMT	7009	2711
	472	542	238.996	1194.98	6.639	CHTGTNMA	7098	2366
	474	963	422.096	2110.48	11.725	KNVLTNMA	6801	2251
	956	583	264.140	1320.70	7.337	BRSTTNXA	6529	2056
	476	1632	630.416	3152.08	17.512	BRHMALMT	7518	2446
	477	790	305.165	1525.82	8.477	HNVLALNT	7267	2534
	478	949	366.584	1832.92	10.183	MTGMALTT	7492	2247
	480	581	224.431	1122.16	6.234	MOBLALMT	8167	2367
	482	2238	750.127	3750.64	20.837	JCSNMSPS	8035	2880
	484	318	106.143	530.72	2.948	GLPTMSTS	8318	2511
Total this Node		26462			307.041			
Node # 12 Miami	452	975	472.519	2362.59	13.126	JCVLFLCL	7647	1276
	454	617	299.020	1495.10	8.306	GSVLFLAN	7838	1310
	456	302	146.360	731.80	4.066	DYBHFLMA	7791	1052
	458	1101	533.583	2667.91	14.822	ORLDFLMA	7954	1032
	460	3698	1792.180	8960.90	49.783	OJUSFLTL	8320	538
Total this Node		6693			90.102			
Node # 20 Tampa	448	456	220.993	1104.97	6.139	PNSCFLBL	8147	2200
	450	259	125.520	627.60	3.487	PNCYFLMA	8058	1914
	939	624	302.412	1512.06	8.400	FTMYFLXA	8359	904
	952	2447	1185.901	5929.51	32.942	TAMPFLXA	8172	1147
	953	201	97.412	487.06	2.706	TLHSFLXA	7877	1716
Total this Node		3987			53.673			
N O D E # 2 1 Houston	486	1147	479.502	2397.51	13.319	SHPTLATL	8271	3493
	488	912	381.260	1906.30	10.591	LFYTLAMA	8587	2997
	490	740	309.356	1546.78	8.593	NWORLAMA	8482	2638
	492	656	274.240	1371.20	7.618	BTRGLAMA	8476	2874
	540	510	251.267	1256.33	6.980	ELPSTXMA	9231	5655
	542	444	218.750	1093.75	6.076	MDLDTXMU	8934	4890
	558	703	346.354	1731.77	9.621	AUSTTXGR	9004	3997
	560	4001	1971.213	9856.06	54.756	HSTNTX01	8946	3550
	562	483	237.964	1189.82	6.610	BUMTTXTE	8777	3344
	564	679	334.530	1672.65	9.292	CRCHTXTU	9481	3754
	566	1561	769.073	3845.37	21.363	SNANTXCA	9225	4063
	568	610	300.535	1502.67	8.348	HRLNTXAT	9815	3668
	570	172	84.741	423.70	2.354	BRYNTXXA	8827	3788
	961	233	114.794	573.97	3.189	SANGTXXA	8944	4563
Total this Node		12851			168.711			
Node # 5	544	267	131.546	657.73	3.654	LBCKTXPS	8598	4962
	546	433	212.535	1062.67	5.904	AMRLTXDR	8266	5075

List of LATA Numbers served by each Node in the 23-Node Network Configuration

		LATA	Pop.	LATA	AcLi	DrBH	CCS	IX	Erlg.	Accs.	Pnt.	V	H
Node #	LATA #	(1000)	(1000)	(1000)	(1000)	(1000)	(1000)	(1000)	(1000)	(1000)	(1000)	(1000)	(1000)
Dallas	548	246	121.199	606.00	3.367	WCFLTXNI	8322	4406					
	550	209	102.970	514.85	2.860	ABLNTXOR	8698	4513					
	552	3941	1941.652	9708.26	53.935	DLLSTXTL	8432	4033					
	554	746	363.122	1815.61	10.087	LGVWXTL	8347	3661					
	556	442	217.765	1088.82	6.049	WACOTX01	8702	3966					
Total this Node		6284					85.855						
Node # 22	526	369	140.008	700.04	3.889	FTSMARSU	7752	3855					
	528	1551	588.487	2942.44	16.347	LTRKARFR	7721	3448					
	530	356	135.075	675.38	3.752	PNBLARJE	7803	3358					
	OklaHmCty	536	2011	937.450	4687.25	26.040	OKCYOKCE	7946	4372				
	538	1252	583.634	2918.17	16.212	TULSOKTS	7708	4176					
Total this Node		5539					66.240						
Node # 23	524	2048	968.190	4840.95	26.894	KSCYMO09	7029	4202					
	532	1122	536.154	2680.77	14.893	WCHTKSBR	7489	4520					
	534	721	344.534	1722.67	9.570	TPKAKSJA	7110	4369					
	Kans.City	644	1013	486.186	2430.93	13.505	OMAHNENW	6687	4595				
	646	383	186.536	932.68	5.182	GDISNENW	6901	4936					
Total this Node	958	443	215.758	1078.79	5.993	LNCLNEXL	6823	4674					
	5730						76.038						
Node # 11	462	588	227.775	1138.87	6.327	LSVLKYCS	6529	2773					
	464	678	252.288	1261.44	7.008	QWBOKYMA	6731	2927					
	St.Louis	466	1399	520.576	2602.88	14.460	LXTNKYXA	6472	2555				
	520	3344	1601.054	8005.27	44.474	STLSMO09	6807	3483					
	521	194	91.332	456.66	2.537	JFCYMOXA	6963	3782					
Total this Node	522	684	322.017	1610.08	8.945	SPFDMOTL	7311	3833					
	6887						83.751						
Node # 14	620	681	341.272	1706.36	9.480	ROCHMNRO	5916	4326					
	624	325	162.869	814.34	4.524	DLTHMNME	5352	4529					
	626	413	206.968	1034.84	5.749	STCDMNTD	5721	4703					
	Mpls.St.P	628	2319	1162.130	5810.65	32.281	MPLSMNDT	5780	4526				
	630	357	164.551	822.75	4.571	SXCYIADT	6468	4767					
Total this Node	632	1110	510.180	2550.90	14.172	DESMIADT	6472	4275					
	634	765	363.107	1815.53	10.086	DVNPIADT	6273	3818					
	635	662	304.269	1521.35	8.452	CDRRIADT	6262	4021					
	6632						89.315						
N	636	749	373.314	1866.57	10.370	FARGNDBC	5614	5181					
O	638	329	162.226	811.13	4.506	BSMRNDBC	5843	5735					
D	640	700	308.000	1540.00	8.556	SXFLSDCO	6278	4901					
E	648	506	232.190	1160.95	6.450	HLNAMTMA	6339	7350					
	650	307	140.874	704.37	3.913	BLNGMTMA	6390	6790					
#	654	514	235.100	1175.50	6.531	CSPRWYMA	6916	6297					
9	656	2463	1307.375	6536.88	36.316	DNVRCOMA	7501	5899					
	658	676	358.825	1794.12	9.967	CLSPCOMA	7680	5813					
Denver	660	1619	656.700	3283.50	18.242	SLKCUTMA	7574	7066					
Total this Node		7863					104.850						

EXHIBIT 5.20 LATA ASSIGNMENTS TO THE 23-NODE NETWORK, Page 5 of 5

List of LATA Numbers served by each Node in the 23-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	OrBH CCS (1000)	IX Erlg. (1000)	Accs.Pnt.	V	H
Node # 6	664	1399	600.800	3004.00	16.689	ALBQNMMA	8549	5887
Phoenix	666	2234	1117.679	5588.39	31.047	PHNXAZMA	9133	6748
	668	729	364.721	1823.61	10.131	TCSNAZMA	9346	6487
Total this Node		4362			57.867			
	730	12220	6782.357	33911.79	188.399	LSANCA02	9213	7878
Node # 7	732	2116	1174.425	5872.12	32.623	SNDGCA01	9468	7630
Los Angel	734	447	248.094	1240.47	6.892	BKFDCA01	8947	8059
	740	488	270.850	1354.25	7.524	SNLDCA01	9005	8348
	973	8	4.440	22.20	0.123	PLSPCAXG	9211	7561
Total this Node		15279			235.560			
N	720	370	196.544	982.72	5.460	RENONV02	8064	8323
O	721	521	276.756	1383.78	7.688	LSVGNV02	8665	7411
D	722	5877	3261.859	16309.29	90.607	SNFCCA01	8492	8719
E	724	456	253.090	1265.45	7.030	CHICCA01	8059	8668
	726	1380	765.929	3829.65	21.276	SCRMCA01	8303	8581
#	728	961	533.375	2666.88	14.816	FRSNCA01	8669	8239
8	736	339	188.152	940.76	5.226	SLNSCA01	8723	8561
SanFranc.	738	798	442.907	2214.53	12.303	SKTNCA01	8435	8531
Total this Node		10702			164.406			
	652	777	324.211	1621.05	9.006	BOISIDMA	7094	7866
Node # 13	960	161	67.579	337.89	1.877	CRALIDXX	6228	8085
	670	896	415.889	2079.45	11.552	EUGNDR53	7128	8955
Seattle	672	2047	958.267	4791.33	26.619	PLTDOR62	6799	8915
	674	2954	1448.078	7240.39	40.224	STTLWA06	6337	8896
	676	1082	525.928	2629.64	14.609	SPKNWA01	6247	8177
Total this Node		7917			103.888			

Avg. IX Traffic/Node: 135,965 Erlang

EXHIBIT 5.21 23-NODE TRAFFIC MATRIX Page 1 of 2
Node-to-Node Traffic in 23-Node Network Configuration

From Node #	1	2	3	4	5	6	7	8	9	10	11	12	13
1	0.0	27355.3	23692.7	39347.4	5621.0	3258.0	9199.0	6443.4	8187.1	31235.4	10011.2	8271.4	4766.6
2	24276.0	0.0	12161.5	18364.8	2955.2	1580.4	4105.9	2885.0	3709.9	14096.4	4529.6	3773.3	2162.6
3	21920.2	12925.6	0.0	22900.4	3607.2	2313.9	4768.3	3365.4	4341.7	16641.6	5628.5	5229.7	2550.6
4	29595.0	15652.2	19011.6	0.0	8436.2	4308.3	12163.5	7334.5	8037.2	30085.1	10779.8	9897.4	5423.7
5	6430.0	3238.0	3855.5	10806.0	0.0	1832.5	4745.9	3185.2	3210.6	8771.8	2965.9	2348.6	2354.1
6	3502.3	1946.0	2789.6	6289.9	2089.0	0.0	5688.1	3656.1	2578.9	4920.0	1728.8	1577.2	1934.5
7	14185.7	7143.5	7996.0	24823.1	7526.0	7833.3	0.0	20203.4	11965.7	23752.5	7850.7	4377.6	12683.6
8	9723.8	4910.7	5526.8	14699.8	4946.7	4951.8	19775.1	0.0	8235.0	16247.1	5111.4	3023.3	9103.3
9	8344.1	4262.4	4821.3	10851.2	3368.1	2390.1	7929.6	5577.7	0.0	59826.5	3262.9	2408.9	3966.4
10	25013.7	12736.6	14538.3	36695.9	7234.9	3548.7	12334.8	8624.4	8300.2	0.0	10287.7	7657.4	6391.4
11	7647.9	4000.9	4717.1	10779.9	2357.8	1219.6	3908.0	2621.9	2529.7	9358.5	0.0	2170.9	1915.5
12	8547.0	4396.8	5968.9	13651.6	2515.2	1488.4	2979.1	2102.8	2456.8	8246.3	3035.0	0.0	1543.6
13	6249.0	3196.0	3651.7	9407.7	3175.9	2328.3	10752.7	7903.3	5080.4	10463.3	3169.1	1928.4	0.0
14	7288.6	4397.3	4924.6	10667.3	2607.6	1435.5	4448.2	3115.7	3398.8	10342.4	3168.9	1990.8	2310.0
15	20985.7	9234.9	8018.0	14355.9	2600.7	1279.7	3613.3	2530.9	2925.9	12204.6	3394.6	2801.3	1872.3
16	9787.1	4662.9	4507.2	8309.1	1389.4	837.4	1930.4	1368.9	1813.7	6840.9	2136.3	1708.1	1134.0
17	13970.5	7360.2	8618.4	16647.6	3215.0	1784.7	5197.7	2893.9	3495.6	14695.6	4592.6	3912.0	2542.2
18	12277.6	6348.2	7126.0	14850.7	2989.6	1609.6	5585.1	2983.9	3204.8	14098.9	4087.9	3506.0	2840.0
19	5067.8	2829.0	3746.7	5763.5	933.5	620.4	1241.8	901.5	1206.7	4721.6	1469.8	1134.5	766.6
20	4323.4	2885.6	3361.6	7866.7	1651.5	839.6	1944.2	1224.8	1480.7	5208.5	1889.2	2937.1	895.5
21	13071.5	6605.5	7908.5	21729.6	6751.8	3386.3	9534.3	6575.8	5710.1	16142.9	5883.3	5169.7	4674.6
22	4784.2	2506.3	3273.6	8539.5	2600.6	1279.4	3370.3	2380.4	2378.3	6672.5	2386.4	1809.9	1746.4
23	5058.2	2701.2	3484.3	9294.8	2483.9	1408.1	3868.4	2724.8	3044.8	7626.5	2721.2	1776.2	2010.4

Totl. Intertg. Traf. 262049.3 151295.1 163699.9 336642.4 82056.8 51534.0 139089.7 100603.7 97292.6 332198.9 100090.8 79409.7 75647.9
in Node # 1 2 3 4 5 6 7 8 9 10 11 12 13

Total Busy Hour Traffic in Network: 2914262. Erlang
% of all IX Traffic: 93.19%

EXHIBIT 5.21 23-NODE TRAFFIC MATRIX Page 2 of 2
Node-to-Node Traffic in 23-Node Network Configuration

From Node #	14	15	16	17	18	19	20	21	22	23	Totl.Origtg.Traf. from Node #
1	8117.1	22992.2	10195.1	18380.2	14008.5	5938.9	4365.5	9899.9	5836.0	6037.3	284159.2
2	4312.5	7555.9	4278.8	8570.9	6714.4	2921.3	2578.1	4418.7	2741.3	2845.4	141537.9
3	5015.3	8089.1	4307.4	10290.9	7817.7	4059.4	3110.6	5216.1	3683.6	3758.7	161541.9
4	8903.4	11838.9	6498.2	16779.7	12842.7	5094.3	5993.1	11979.5	7957.8	7764.3	256376.2
5	2802.7	2771.9	1401.7	4120.3	3467.3	1059.7	1613.0	4933.7	3046.5	2653.7	81614.6
6	1732.0	1509.8	952.9	2614.3	2138.5	808.5	939.5	2937.0	1702.5	1701.9	55797.3
7	7590.9	6115.4	3092.4	10636.6	10299.2	2244.0	3054.4	11225.0	6339.9	6558.5	217497.4
8	5203.3	4191.9	2142.5	5712.2	5348.5	1587.1	1864.1	7545.9	4374.4	4517.1	148741.8
9	24526.4	3298.1	1913.2	4671.0	3884.5	1433.7	1517.5	4466.4	2347.6	3400.3	169067.9
10	9250.5	10621.2	5684.2	15384.4	13498.3	4428.1	4373.7	9509.3	6564.1	7534.1	240211.9
11	2753.3	2799.7	1748.8	4877.8	3732.3	1314.3	1454.7	3338.9	2341.7	2412.4	80001.6
12	2311.7	3223.5	1837.3	4887.1	3546.3	1373.4	3087.1	3971.3	2326.8	2040.8	85536.8
13	3350.0	2693.9	1521.7	4374.6	4450.4	1014.0	1179.3	4746.3	2792.8	2895.7	96324.5
14	0.0	2813.3	1951.9	4729.2	4084.2	1426.9	1209.6	3230.2	2404.8	2850.5	84796.3
15	2840.3	0.0	3725.8	6801.7	5365.4	2296.5	1650.0	3810.8	2292.4	2371.4	116972.1
16	2079.5	3496.8	0.0	4263.3	3286.3	1484.5	931.8	2077.5	1335.5	1574.0	66954.6
17	3982.5	5518.6	3369.2	0.0	7932.9	3058.9	2330.4	4244.6	3237.5	3488.4	126089.0
18	3787.9	4928.8	2856.8	8745.2	0.0	2149.9	1933.1	3483.9	2919.8	3081.4	115395.1
19	1347.5	2149.8	1314.8	3420.3	2191.6	0.0	803.3	1336.4	1002.8	1164.2	45136.1
20	1330.5	1799.7	958.1	3004.1	2166.6	937.6	0.0	2494.7	1388.9	1200.7	51789.3
21	4877.9	5542.4	2849.5	7866.5	5977.9	2248.5	3388.3	0.0	5367.1	4960.9	156222.9
22	2188.1	2062.5	1123.2	3495.9	2859.7	951.1	1135.5	3288.6	0.0	2237.9	63070.3
23	2880.2	2180.6	1365.5	3696.1	3023.5	1143.1	1105.3	3391.2	2466.3	0.0	69454.6

Totl.Termtg.Traf. 111183.5 118194.0 65089.0 157322.3 128636.5 48973.7 49619.9 111545.9 75070.1 77049.6
in Node # 14 15 16 17 18 19 20 21 22 23

EXHIBIT 5.22 NODE LOCATIONS IN 17-NODE NETWORK

List of Access Nodes in the 17-Node Network

Node #	LATA #	CLLI	Coordinates	
			V	H
1	132	NYCMNY54	4992	1410
2	228	PHLAPAMK	5250	1459
3	236	WASHDCSW	5623	1578
4	438	ATLNGATL	7259	2084
5	552	DLLSTXTL	8432	4033
6	540	ELPSTXMA	9231	5655
7	730	LSANCA02	9213	7878
8	722	SNFCCA01	8492	8719
9	656	DNVRCOMA	7501	5899
10	368	CHCGILCL	5987	3426
11	520	STLSMD09	6807	3483
12	460	OJUSFTL	8320	538
13	674	STTLWA06	6337	8896
14	628	MPLSMNDT	5780	4526
15	128	BSTNMAFR	4422	1248
16	560	HSTNTX01	8946	3550
17	320	CLEVDH02	5575	2544

EXHIBIT 5.23
Map of 17-Node Network Configuration

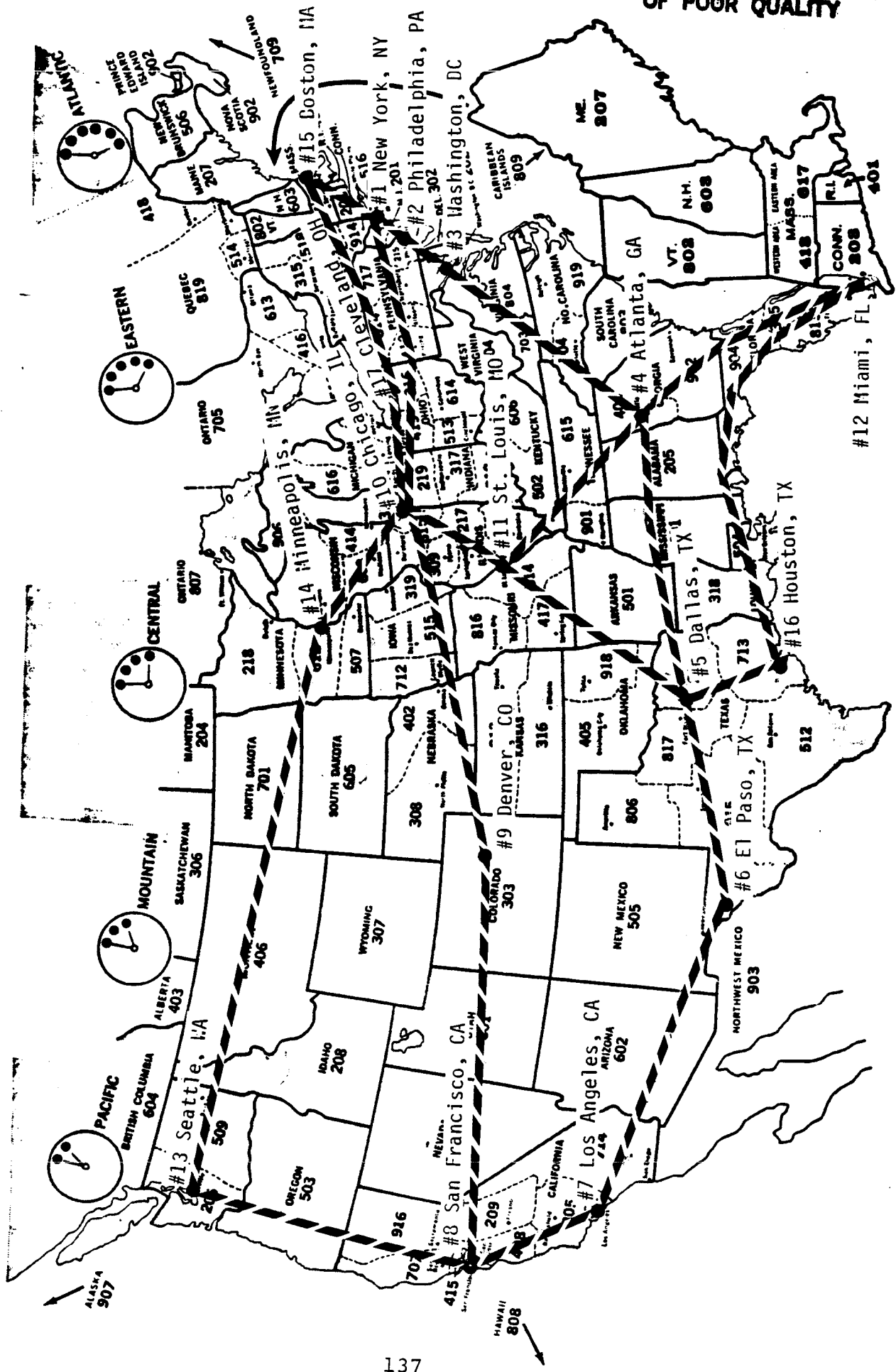


EXHIBIT 5.24 LINKS IN 17-NODE NETWORK

List of Links between the 17 Network Nodes

From to Node #	Type	From LATA #	To LATA #	Distance miles
15 to 1	East NS	128	132	187.39
1 to 2	East NS	132	228	83.05
2 to 3	East NS	228	236	123.81
3 to 4	East NS	236	438	541.53
4 to 12	East NS	438	460	592.94
12 to 16	South	460	560	972.83
4 to 5	South	438	552	719.34
5 to 6	South	552	540	571.78
6 to 7	South	540	730	703.00
7 to 8	West NS	730	722	350.30
8 to 13	West NS	722	674	683.77
13 to 14	North	674	628	1393.10
14 to 10	North	628	358	353.96
10 to 17	North	358	320	307.84
8 to 9	Central	722	656	945.22
9 to 10	Central	656	358	916.95
10 to 1	Central	358	132	710.93
10 to 11	Cross	358	520	259.93
11 to 4	Cross	520	438	464.92
11 to 5	Cross	520	552	542.51
5 to 16	Cross	552	560	223.04
17 to 15	North	320	128	548.55

List of LATA Numbers served by each Node in the 17-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	DrBH CCS (1000)	IX Erlg. (1000)	Acc.Pnt.	V	H
Node #15	120	1146	496.400	2482.00	13.789	PTLDMEPD	3999	1526
	122	958	470.100	2350.50	13.058	MNCHNHCO	4385	1343
	124	526	245.000	1225.00	6.806	BURLVTMA	4270	1808
	126	795	403.648	2018.24	11.212	SPFDMAWD	4620	1408
	128	4970	2523.436	12617.18	70.095	BSTNMAFR	4422	1248
Boston	130	955	437.100	2185.50	12.142	PRVDMAWA	4550	1219
	920	3077	1585.091	7925.46	44.030	HRFRCT03	4687	1373
Total this Node		12427			171.133			
N	132	11006	5837.611	29188.05	162.156	NYCMNY54	4992	1410
	133	737	390.968	1954.84	10.860	PGHKNYSH	4822	1525
	134	1257	666.821	3334.11	18.523	ALBYNYSS	4639	1629
	136	1546	820.132	4100.66	22.781	SYRCNYSU	4797	1990
	138	628	333.145	1665.73	9.254	BNGHNYHY	4943	1837
#	140	1603	850.369	4251.85	23.621	BFLONYFR	5076	2327
	974	951	504.492	2522.46	14.014	ROCHNYXA	4913	2195
New York	224	5612	3213.674	16068.37	89.269	NWRKNJ02	5016	1430
Total this Node		23340			350.478			
Node # 2	220	285	163.203	816.02	4.533	ATCYNJAC	5284	1284
	222	1570	899.050	4495.25	24.974	TRENNJTN	5156	1440
	226	1472	712.030	3560.15	19.779	HRBGPAHA	5363	1733
Philadel.	228	5122	2508.461	12542.30	69.679	PHLAPAMK	5250	1459
	230	986	476.944	2384.72	13.248	ALNAPAAL	5460	1972
	232	1487	719.285	3596.43	19.980	SCTNPASC	5042	1715
Total this Node		10922			152.194			
N	236	3270	2127.661	10638.31	59.102	WASHDCSW	5623	1578
	238	2307	1229.543	6147.71	34.154	BLTMDCH	5511	1574
	240	453	222.927	1114.63	6.192	HGTWMDHG	5555	1772
	242	241	128.444	642.22	3.568	SLBRMDSB	5577	1316
	244	921	441.781	2208.91	12.272	RONKVALX	6196	1802
O	246	276	132.390	661.95	3.678	CLPPVACU	5791	1666
	248	1033	495.505	2477.52	13.764	RCMDVAGR	5906	1472
E	250	342	164.049	820.25	4.557	LYBGVACH	6094	1703
	252	1304	625.497	3127.49	17.375	NRFLVABS	5917	1223
#	927	78	37.415	187.07	1.039	HRBGVAXA	5879	1787
	928	117	56.122	280.61	1.559	CHVLVAXA	5919	1683
	929	28	13.431	67.15	0.373	EDBGVAXA	5783	1789
Wash.DC	254	1054	393.601	1968.00	10.933	CHTNWVLE	6152	2174
	256	678	253.189	1265.95	7.033	CLBGWVMA	5864	2096
	932	123	45.933	229.66	1.276	BLFDWVXA	6315	1990
Total this Node		12225			176.875			
	420	467	203.961	1019.81	5.666	AHVLNCOH	6747	2001
	422	1873	810.789	4053.95	22.522	CHRLNCCA	6657	1698
	424	1160	506.627	2533.14	14.073	GNBONCEU	6402	1639
	426	777	339.353	1696.77	9.426	RLGHNCMD	6344	1434
	428	361	157.666	788.33	4.380	WLMGNCFO	6657	1145
	949	725	316.642	1583.21	8.796	FYVLNCXA	6501	1385
	951	868	379.097	1895.49	10.530	RCMTNCXA	6232	1329

List of LATA Numbers served by each Node in the 17-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	OrBH CCS (1000)	IX Erlg. (1000)	Acc.Pnt.	V	H
N	430	1020	401.611	2008.05	11.156	GNVLSCDT	6872	1895
O	432	626	246.104	1230.52	6.836	FLRNSCMA	6745	1417
D	434	795	312.544	1562.72	8.682	CLMASCTL	6902	1588
E	436	509	200.107	1000.53	5.559	CHTNSCDT	7022	1279
	438	3513	1586.734	7933.67	44.076	ATLNGATL	7259	2084
#	440	642	289.975	1449.88	8.055	SVNHGABS	7269	1379
4	442	462	202.235	1011.17	5.618	AGSTGAMT	7090	1675
	444	620	280.038	1400.19	7.779	ALBYGAMA	7650	1816
	446	488	220.417	1102.09	6.123	MACNGAMT	7364	1866
Atlanta	472	542	238.996	1194.98	6.639	CHTGTNMA	7098	2366
	474	963	422.096	2110.48	11.725	KNVLTNMA	6801	2251
	956	583	264.140	1320.70	7.337	BRSTTNXA	6529	2056
	476	1632	630.416	3152.08	17.512	BRHMALMT	7518	2446
	477	790	305.165	1525.82	8.477	HNVLALNT	7267	2534
	478	949	366.584	1832.92	10.183	MTGMALTT	7492	2247
	480	581	224.431	1122.16	6.234	MOBLALMT	8167	2367
	482	2238	750.127	3750.64	20.837	JCSNMSPS	8035	2880
	484	318	106.143	530.72	2.948	GLPTMSTS	8318	2511
Total this Node		23502			271.167			
	448	456	220.993	1104.97	6.139	PNSCFLBL	8147	2200
N	450	259	125.520	627.60	3.487	PNCYFLMA	8058	1914
O	452	975	472.519	2362.59	13.126	JCVLFLCL	7647	1276
D	454	617	299.020	1495.10	8.306	GSVLFLAN	7838	1310
E	456	302	146.360	731.80	4.066	DYBHFLMA	7791	1052
	458	1101	533.583	2667.91	14.822	ORLDFLMA	7954	1032
#	460	3698	1792.180	8960.90	49.783	OJUSFLTL	8320	538
1	939	624	302.412	1512.06	8.400	FTMYFLXA	8359	904
2	952	2447	1185.901	5929.51	32.942	TAMPFLXA	8172	1147
Miami	953	201	97.412	487.06	2.706	TLHSFLXA	7877	1716
Total this Node		10680			143.775			
	526	369	140.008	700.04	3.889	FTSMARSU	7752	3855
N	528	1551	588.487	2942.44	16.347	LTRKARFR	7721	3448
O	530	356	135.075	675.38	3.752	PNBLARJE	7803	3358
D	536	2011	937.450	4687.25	26.040	OKCYOKCE	7946	4372
E	538	1252	583.634	2918.17	16.212	TULSOKTS	7708	4176
	548	246	121.199	606.00	3.367	WCFLTXXNI	8322	4406
#	550	209	102.970	514.85	2.860	ABLNTXOR	8698	4513
5	552	3941	1941.652	9708.26	53.935	DLLSTXTL	8432	4033
	554	746	363.122	1815.61	10.087	LGVWXTL	8347	3661
Dallas	556	442	217.765	1088.82	6.049	WACOTX01	8702	3966
Total this Node		11123			142.538			
	330	369	155.709	778.54	4.325	EVVLIN01	6729	3018
	332	793	334.626	1673.13	9.295	SBNDIN05	5919	3206
	334	530	223.647	1118.23	6.212	HNTNIN01	6008	3013
	336	2042	861.673	4308.36	23.935	IPLSIN01	6272	2992
	338	532	224.491	1122.45	6.236	BLTNIN01	6417	2984
	937	178	75.112	375.56	2.086	RCMDINXB	6157	2813
	938	157	66.250	331.25	1.840	TRRHINXA	6431	3145

List of LATA Numbers served by each Node in the 17-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	OrBH CCS (1000)	IX Erlg. (1000)	Acc.Pnt.	V	H
N O D E # 1 0 Chicago	350	1128	529.858	2649.29	14.718	APPLWIO1	5588	3778
	352	529	248.489	1242.44	6.902	EUCLWIO1	5697	4262
	354	931	437.321	2186.61	12.148	MDSNWI11	5888	3796
	356	2158	1013.683	5068.42	28.158	MILWWI48	5788	3588
	358	8173	4086.055	20430.27	113.502	CHCGILCL	5987	3426
	360	362	183.439	917.20	5.096	RCFRILRT	6021	3675
	362	365	184.960	924.80	5.138	CAIRILCF	7042	3168
	364	268	135.806	679.03	3.772	STNGILSI	6158	3714
	366	225	114.016	570.08	3.167	BLTNILXD	6358	3483
	368	506	256.410	1282.05	7.122	PEORILPJ	6362	3592
	370	314	159.116	795.58	4.420	CHMPILCP	6371	3336
	374	391	198.135	990.67	5.504	SPFDILSD	6540	3513
	376	184	93.240	466.20	2.590	QNCYILQY	6642	3791
	976	279	141.380	706.90	3.927	MTONILXC	6503	3291
	977	171	86.652	433.26	2.407	GLBGILXD	6370	3732
	978	167	84.625	423.13	2.351	OLNYILXE	6623	3172
Total this Node		20752			274.853			
N O D E # 1 7 Cleveland	234	2996	1449.213	7246.06	40.256	PITBPADG	5619	2184
	924	435	210.416	1052.08	5.845	ERIEPAXH	5321	2397
	320	2139	968.581	4842.91	26.905	CLEVOH02	5575	2544
	322	636	287.993	1439.97	8.000	YNTWOH02	5557	2354
	324	2227	1008.429	5042.15	28.012	CLMBOH11	5972	2554
	325	1256	568.741	2843.71	15.798	AKRNOH25	5637	2472
	326	1290	584.137	2920.69	16.226	TOLD0H21	5703	2820
	328	1187	537.497	2687.48	14.930	DYTNOH15	6112	2704
	922	1706	746.977	3734.88	20.749	CNCNOHWS	6263	2680
	923	653	295.691	1478.46	8.214	MNFDOHXF	5784	2575
	340	5174	2506.272	12531.36	69.619	DTRTMIBH	5536	2829
	342	324	156.886	784.43	4.358	MRQTMIMN	5080	3875
	344	987	478.100	2390.50	13.281	SGNWMIFA	5404	3074
	346	544	263.512	1317.56	7.320	LNNGMIMN	5583	3081
	348	2046	991.077	4955.39	27.530	GDRPMIBL	5628	3261
Total this Node		23600			307.042			
N O D E # 6 Houston	486	1147	479.502	2397.51	13.319	SHPTLATL	8271	3493
	488	912	381.260	1906.30	10.591	LFYTLAMA	8587	2997
	490	740	309.356	1546.78	8.593	NWORLAMA	8482	2638
	492	656	274.240	1371.20	7.618	BTRGLAMA	8476	2874
	558	703	346.354	1731.77	9.621	AUSTTXGR	9004	3997
	560	4001	1971.213	9856.06	54.756	HSTNTX01	8946	3550
	562	483	237.964	1189.82	6.610	BUMTTXTE	8777	3344
	564	679	334.530	1672.65	9.292	CRCHTXTU	9481	3754
	566	1561	769.073	3845.37	21.363	SNANTXCA	9225	4063
	568	610	300.535	1502.67	8.348	HRLNTXAT	9815	3668
	570	172	84.741	423.70	2.354	BRYNTXXA	8827	3788
	961	233	114.794	573.97	3.189	SANGTXXA	8944	4563
Total this Node		11897			155.655			
	620	681	341.272	1706.36	9.480	ROCHMNRO	5916	4326
	624	325	162.869	814.34	4.524	DLTHMNME	5352	4529

List of LATA Numbers served by each Node in the 17-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	OrBH CCS (1000)	IX Erlg. (1000)	Acc.Pnt.	V	H
Node # 14	626	413	206.968	1034.84	5.749	STCDMNTD	5721	4703
	628	2319	1162.130	5810.65	32.281	MPLSMNDT	5780	4526
Mnpls.StP	630	357	164.551	822.75	4.571	SXCYIADT	6468	4767
	632	1110	510.180	2550.90	14.172	DESMIADT	6472	4275
	634	765	363.107	1815.53	10.086	DVNPIADT	6273	3818
	635	662	304.269	1521.35	8.452	CDRRIADT	6262	4021
	636	749	373.314	1866.57	10.370	FARGNDBC	5614	5181
	638	329	162.226	811.13	4.506	BSMRNDBC	5843	5735
	640	700	308.000	1540.00	8.556	SXFLSDCO	6278	4901
Total this Node		8410			112.747			
N	644	1013	486.186	2430.93	13.505	OMAHNENW	6687	4595
O	646	383	186.536	932.68	5.182	GDISNENW	6901	4936
D	958	443	215.758	1078.79	5.993	LNCLNEXL	6823	4674
E	648	506	232.190	1160.95	6.450	HLNAMTMA	6339	7350
	650	307	140.874	704.37	3.913	BLNGMTMA	6390	6790
#	654	514	235.100	1175.50	6.531	CSPRWYMA	6916	6297
9	656	2463	1307.375	6536.88	36.316	DNVRCOMA	7501	5899
	658	676	358.825	1794.12	9.967	CLSPCOMA	7680	5813
Denver	660	1619	656.700	3283.50	18.242	SLKCUTMA	7574	7066
Total this Node		7924			106.098			
	540	510	251.267	1256.33	6.980	ELPSTXMA	9231	5655
	542	444	218.750	1093.75	6.076	MDLDTXMU	8934	4890
	544	267	131.546	657.73	3.654	LBCKTXPS	8598	4962
Node # 6	546	433	212.535	1062.67	5.904	AMRLTXDR	8266	5075
	664	1399	600.800	3004.00	16.689	ALBQNMMA	8549	5887
El Paso	666	2234	1117.679	5588.39	31.047	PHNXAZMA	9133	6748
	668	729	364.721	1823.61	10.131	TCSNAZMA	9346	6487
Total this Node		6016			80.480			
	730	12220	6782.357	33911.79	188.399	LSANCA02	9213	7878
Node # 7	732	2116	1174.425	5872.12	32.623	SNDGCA01	9468	7630
	734	447	248.094	1240.47	6.892	BKFDCA01	8947	8059
Los Angls	740	488	270.850	1354.25	7.524	SNLOCA01	9005	8348
	973	8	4.440	22.20	0.123	PLSPCAXG	9211	7561
Total this Node		15279			235.560			
	720	370	196.544	982.72	5.460	RENONV02	8064	8323
	721	521	276.756	1383.78	7.688	LSVGNV02	8665	7411
Node # 8	722	5877	3261.859	16309.29	90.607	SNFCCA01	8492	8719
	724	456	253.090	1265.45	7.030	CHICCA01	8059	8668
San Franc	726	1380	765.929	3829.65	21.276	SCRMCA01	8303	8581
	728	961	533.375	2666.88	14.816	FRSNCA01	8669	8239
	736	339	188.152	940.76	5.226	SLNSCA01	8723	8561
	738	798	442.907	2214.53	12.303	SKTNCA01	8435	8531
Total this Node		10702			164.406			
	652	777	324.211	1621.05	9.006	BOISIDMA	7094	7866
Node # 13	960	161	67.579	337.89	1.877	CRALIDXX	6228	8085
	670	896	415.889	2079.45	11.552	EUGNOR53	7128	8955

List of LATA Numbers served by each Node in the 17-Node Network Configuration

Node #	LATA #	LATA Pop. (1000)	LATA AcLi (1000)	OrBH CCS (1000)	IX Erlg. (1000)	Acc.Pnt.	V	H
Seattle	672	2047	958.267	4791.33	26.619	PLTDOR62	6799	8915
	674	2954	1448.078	7240.39	40.224	STTLWA06	6337	8896
	676	1082	525.928	2629.64	14.609	SPKNWA01	6247	8177
Total this Node---		7917			103.888			
N	462	588	227.775	1138.87	6.327	LSVLKYCS	6529	2773
	464	678	252.288	1261.44	7.008	QWBOKYMA	6731	2927
	466	1399	520.576	2602.88	14.460	LXTNKYXA	6472	2555
D	468	1388	602.421	3012.11	16.734	MMPHTNMA	7471	3127
	470	1572	689.029	3445.15	19.140	NSVLTNMT	7009	2711
	520	3344	1601.054	8005.27	44.474	STLSMO09	6807	3483
#	521	194	91.332	456.66	2.537	JFCYMOXA	6963	3782
	522	684	322.017	1610.08	8.945	SPFDMOTL	7311	3833
	524	2048	968.190	4840.95	26.894	KSCYMO09	7029	4202
1	532	1122	536.154	2680.77	14.893	WCHTKSBR	7489	4520
	534	721	344.534	1722.67	9.570	TPKAKSJA	7110	4369
	534	721	344.534	1722.67	9.570	TPKAKSJA	7110	4369
Total this Node---		13738			170.983			

Avg. IX-Traffic/Node:

183,953 Erlang

EXHIBIT 5.26 17-NODE TRAFFIC MATRIX Page 1 of 2

		Node-to-Node Traffic in 17-Node Network Configuration											
		To Node #											
From Node #		1	2	3	4	5	6	7	8	9	10		
1	0.0	28475.8	25411.9	37775.2	12725.9	5536.6	9902.0	6952.6	9062.5	33908.7			
2	25199.5	0.0	12161.5	16376.2	5340.3	2359.3	4105.9	2885.0	3777.3	14096.4			
3	23491.2	12925.6	0.0	20552.2	6908.5	3219.2	4768.3	3365.4	4424.6	16641.6			
4	28394.2	13951.8	17067.2	0.0	13621.5	5382.9	10498.4	6168.2	7435.9	26382.0			
5	11352.1	5371.7	6712.2	15986.8	0.0	4143.9	7378.9	5193.1	5321.8	14448.0			
6	7465.4	3701.2	3808.6	6737.6	3065.0	0.0	2987.8	1868.2	2109.2	6352.9			
7	15265.5	7143.5	7996.0	21435.1	12731.3	10532.1	0.0	20203.4	12035.6	23752.5			
8	10486.8	4910.7	5526.8	12377.4	8762.0	6430.2	19775.1	0.0	8288.4	16247.1			
9	9132.3	4296.2	4867.7	9907.2	5993.9	3370.3	7915.5	5571.8	0.0	10674.6			
10	27149.3	12736.6	14538.3	32762.4	13002.4	5299.8	12334.8	8624.4	8475.7	0.0			
11	16108.5	7665.0	9280.6	19420.2	9676.0	3886.0	8171.5	5619.5	5806.9	18640.4			
12	13910.0	7282.4	9330.5	19220.5	7501.3	3224.4	4923.2	3327.6	3999.1	13454.8			
13	6884.1	3196.0	3651.7	7915.3	5608.3	3178.4	10752.7	7903.3	5052.0	10463.3			
14	10305.6	5327.5	6016.2	11560.8	6042.6	2637.2	5732.3	4015.1	4468.6	12958.0			
15	29553.3	12777.3	10806.0	17495.0	6167.0	2553.7	4840.7	3390.6	3967.6	16372.3			
16	12910.9	6064.7	7303.2	17806.5	10627.2	4441.1	8462.6	5922.6	5473.7	15073.8			
17	34615.7	16537.3	19491.1	33177.4	13642.4	5778.7	12024.6	6779.3	8036.3	33516.0			

Totl. Termtg. Traf. 282224.4 152363.5 163969.5 300505.9 141415.7 71972.7 134574.4 97790.0 97735.1 282982.6
in Node # 1 2 3 4 5 6 7 8 9 10

Erlang

Total Busy Hour Traffic in Network: 2830397.
% of all IX Traffic: 90.51%

Node-to-Node Traffic in 17-Node Network Configuration										Totl. Origtg. Traf.	
From Node #	To Node #									17	from Node #
	11	12	13	14	15	16	17	18	19		
1	20323.2	13661.3	5264.6	11270.0	31746.1	13492.9	42397.2	307906.3			1
2	8560.8	6351.3	2162.6	5160.8	10911.2	5619.1	18206.5	143272.9			2
3	10687.7	8340.4	2550.6	6033.8	10825.5	7026.7	22167.9	163929.3			3
4	18450.7	14194.4	4560.9	9522.7	14299.8	14254.5	30741.2	234926.2			4
5	10658.6	6534.5	3823.5	5881.9	6001.5	9994.8	15133.8	133937.2			5
6	4151.8	2586.1	1399.6	2458.1	3739.5	3118.2	7693.9	63237.2			6
7	15724.4	7432.0	12683.6	9626.0	8127.9	13691.7	23179.9	221500.6			7
8	10524.5	4887.4	9103.3	6598.3	5571.4	9937.4	12647.8	151474.4			8
9	7185.7	3945.6	3907.8	4894.7	4388.2	5785.5	10024.1	101861.0			9
10	19561.6	12031.1	6391.4	11416.2	14169.9	12702.9	33310.9	244507.8			10
11	0.0	7286.5	4124.7	7115.4	7622.1	9274.2	19633.4	159330.8			11
12	9408.9	0.0	2439.2	4591.1	6779.0	8647.0	15915.1	133954.3			12
13	6694.2	3107.7	0.0	4312.2	3580.5	5818.8	9984.4	98103.0			13
14	8061.5	4098.0	3032.6	0.0	4827.6	5387.8	13007.9	107479.2			14
15	8875.1	6066.8	2508.3	4844.4	0.0	6596.2	19428.0	156242.3			15
16	11027.0	8022.3	4273.7	5641.5	6874.2	0.0	14924.3	144849.3			16
17	19605.7	13621.2	6148.8	11406.7	16838.3	12665.7	0.0	263885.4			17

Totl. Termtg. Traf. 189501.5 122166.6 74369.1 110773.9 156302.7 143353.3 308396.3
 in Node # 11 12 13 14 15 16 17

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Orig.BH Erlang	Termtg.BH Erlang
	120	316.15	10337.0	12183.5
	122	193.12	9789.3	10184.8
N	124	260.71	5101.9	5592.1
O	126	117.64	8405.5	8451.9
D	128	187.39	52547.8	52837.8
E	130	152.26	9102.1	10152.9
	920	97.16	33007.8	32712.7
#	132	0.00	121561.9	117008.6
1	133	64.90	8141.5	7835.3
	134	131.37	13885.8	13363.6
	136	193.50	17078.3	16436.1
New York	138	135.92	6937.4	6676.5
	140	291.19	17708.0	17042.0
	974	249.49	10505.5	10110.4
	224	9.88	66921.3	59663.1
Total this Node			391031.1	380251.4
N	220	56.37	4096.1	3871.8
O	222	30.33	22564.4	21328.8
D	226	93.73	17870.5	19997.4
E	228	0.00	62957.3	69583.4
	230	175.29	11970.3	13395.0
2	232	104.31	18052.6	20201.2
Philadel.	234	257.25	36372.3	40701.2
	924	297.47	5281.0	5909.6
Total this Node			179164.6	194988.3
	236	0.00	53512.2	43813.2
	238	35.44	30923.9	30910.4
N	240	65.01	5606.8	6069.5
O	242	84.12	3230.5	3229.0
D	244	194.55	11111.1	12340.0
E	246	59.97	3329.7	3698.0
	248	95.56	12462.3	13840.7
#	250	154.10	4125.9	4582.3
3	252	145.76	15731.7	17471.7
	927	104.51	941.0	1045.1
Wash.DC	928	99.32	1411.5	1567.6
	929	83.74	337.8	375.2
	254	252.00	9899.3	14122.1
	256	180.67	6367.9	9084.2
	932	254.68	1155.2	1648.0
Total this Node			160146.7	163797.1
	420	164.02	4371.8	5214.3
	422	226.14	17378.9	20913.1
	424	305.36	10859.3	12952.0
	426	354.93	7273.9	8675.6

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Orig.BH Erlang	Termtg.BH Erlang
N	428	352.72	3379.5	4030.8
O	949	326.06	6787.1	8095.0
D	951	403.08	8125.8	9691.7
E	430	136.19	8608.3	11388.9
	432	266.29	5275.1	6989.6
#	434	193.25	6699.2	8876.6
4	436	265.37	4289.2	5683.3
	438	0.00	34010.9	39224.6
	440	222.96	6215.5	7168.3
	442	139.94	4334.8	5158.5
Atlanta	444	149.90	6002.5	6922.6
	446	76.52	4724.5	5448.8
	448	283.20	4736.9	5091.5
	450	258.32	2690.5	2891.9
	452	283.44	10128.2	10886.4
	454	305.67	6409.4	6889.1
	456	367.16	3137.2	3372.0
	458	398.71	11437.1	12293.3
	460	592.94	38414.6	41290.2
	939	510.14	6482.1	6967.3
	952	413.71	25419.3	27322.1
	953	227.45	2088.0	2244.3
	468	336.57	12912.7	15497.8
	470	213.45	14769.3	17552.3
	472	102.69	5122.9	6051.7
	474	154.16	9047.5	10752.4
	956	231.02	5661.6	6509.5
	476	140.76	13512.7	18222.2
	477	142.32	6541.1	8820.8
	478	89.92	7857.6	10596.1
	480	300.76	4810.6	6487.2
	482	351.54	16078.6	24988.5
	484	361.08	2275.1	3550.6
Total this Node			347869.3	414711.1
	486	178.19	11171.1	9976.4
	488	331.26	8882.4	7932.4
	490	441.42	7207.2	6436.4
	492	366.77	6389.1	5705.7
	526	222.28	3261.8	3209.5
N	528	291.16	13710.2	13490.3
O	530	291.76	3146.9	3096.4
D	536	187.38	21840.1	17491.2
E	538	233.37	13597.1	10889.6
	540	571.78	5853.9	4435.9
#	542	314.08	5096.3	3861.8
5	544	298.43	3064.7	2322.3
	546	333.66	4951.5	3766.1

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Orig.BH Erlang	Termtg.BH Erlang
Dallas	548	122.98	2823.6	2139.7
	550	173.54	2398.9	1817.8
	552	0.00	45235.4	34278.0
	554	120.67	8459.8	6488.5
	556	87.97	5073.3	3844.4
	558	181.24	8069.1	6114.5
	560	223.04	45924.1	34799.8
	562	243.67	5543.9	4201.0
	564	343.26	7793.7	5905.8
	566	250.95	17917.4	13577.2
	568	452.32	7001.7	5305.6
	570	146.99	1974.2	1496.0
	961	233.03	2674.4	2026.6
Total this Node			269061.9	214609.0
Node # 6 Phoenix	664	328.99	15869.3	16528.2
	666	0.00	29522.0	26393.1
	668	106.53	9633.6	8612.6
Total this Node			55025.0	51533.9
Node # 7 LosAngel.	730	0.00	171894.7	111477.7
	732	112.49	29765.1	19303.3
	734	101.74	6287.8	4077.8
	740	162.53	6864.5	4451.8
	973	100.25	112.5	73.0
Total this Node			214924.6	139383.6
N O D E # 8 SanFranc.	652	517.88	7521.0	6645.5
	960	743.48	1567.7	1377.0
	670	437.74	9647.7	7663.3
	672	538.95	22229.7	17507.6
	674	683.77	33592.3	25265.0
	676	730.33	12200.4	9254.2
	720	184.39	4559.4	3164.5
	721	417.23	6420.1	4456.0
	722	0.00	75668.1	50265.0
	724	137.87	5871.1	3900.1
	726	74.00	17767.9	11802.9
	728	161.78	12373.2	8219.3
	736	88.50	4364.7	2899.4
	738	62.12	10274.5	6825.2
Total this Node			224057.9	159245.1
N O D E	636	638.46	9569.2	8373.6
	638	526.86	4158.4	3678.1
	640	499.17	7895.0	7825.8
	644	486.11	12462.5	11325.1
	646	358.80	4781.5	4281.8

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Orig.BH Erlang	Termtg.BH Erlang
	958	442.75	5530.6	4952.6
#	648	587.85	5951.8	5657.0
9	650	450.36	3611.1	3432.2
	654	223.75	6026.4	5746.4
Denver	656	0.00	33512.2	27535.7
	658	62.80	9197.8	7557.5
	660	369.76	16833.3	18100.0
Total this Node			119529.9	108466.0
	320	307.84	19364.6	24743.4
	322	365.25	5757.8	7357.1
	324	275.79	20161.3	25761.3
	325	321.34	11370.7	14529.1
	326	211.63	11678.5	14922.4
	328	231.71	10746.0	13730.9
	922	251.53	14934.1	19734.6
	923	276.66	5911.7	7553.7
	330	267.77	3113.0	4268.5
	332	72.82	6690.1	9173.2
	334	130.77	4471.3	6130.9
N	336	164.19	17227.2	23621.3
O	338	195.00	4488.2	6154.0
D	937	201.16	1501.7	2059.1
E	938	166.16	1324.5	1816.1
	340	236.60	50107.3	59851.5
#	342	320.04	3136.6	3747.9
10	344	215.36	9558.5	11417.4
	346	168.00	5268.3	6292.8
	348	124.94	19814.4	23667.6
Chicago	350	168.26	10593.3	13048.4
	352	279.82	4968.0	6119.3
	354	121.12	8743.3	10769.6
	356	81.14	20266.3	24963.2
	358	0.00	81691.5	94543.1
	360	79.47	3667.5	4187.5
	362	343.45	3697.9	4222.2
	364	105.92	2715.1	3100.2
	366	118.70	2279.5	2602.7
	368	129.68	5126.3	5853.3
	370	124.72	3181.2	3632.3
	374	177.02	3961.3	4523.0
	376	237.12	1864.1	2128.5
	976	168.67	2826.6	3227.4
	977	155.02	1732.4	1978.1
	978	216.57	1691.9	1931.8
	620	285.49	6823.0	7877.6
	624	402.47	3256.2	3759.5
	626	412.49	4137.9	4777.5

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Orig.BH Erlang	Termtg.BH Erlang
	628	353.96	23234.2	26825.6
	630	450.52	3289.8	4129.7
	632	309.20	10199.9	12840.2
	634	153.45	7259.5	8849.3
	635	207.28	6083.2	7657.8
Total this Node			449915.7	550080.4
N	462	241.12	5621.0	8384.7
O	464	177.46	6225.9	9668.1
D	466	312.00	12846.6	19949.4
E	520	0.00	39510.4	47684.6
	521	106.65	2253.9	2766.4
#	522	194.04	7946.6	9753.7
ii	524	237.96	23892.8	29204.0
St.Louis	532	392.49	13231.1	15999.4
	534	296.11	8502.3	10281.3
Total this Node			120030.5	153691.6

EXHIBIT 5.28 TRAFFIC IN LATA ACCESS LINKS OF THE 15-NODE NETWORK, Page 1 of 5

Traffic between nodes of the backbone network and LATA access points

Node #	Lata #	Dist.to Node,miles	Origtg.BH Erlang	Termtg.BH Erlang
	120	160.07	12589.0	14509.6
	122	32.24	11922.0	12129.3
Node #15	124	183.49	6213.3	6659.7
	126	80.50	10236.7	10065.5
Boston	128	0.00	63995.6	62925.4
	130	41.50	11085.1	12091.3
Total this Node			116041.6	118380.7
N	920	97.16	36632.0	35841.0
O	132	0.00	134909.1	128198.1
D	133	64.90	9035.4	8584.6
E	134	131.37	15410.5	14641.6
	136	193.50	18953.5	18007.8
#	138	135.92	7699.1	7315.0
1	140	291.19	19652.3	18671.8
	974	249.49	11659.0	11077.3
New York	224	9.88	74269.1	65368.7
Total this Node			328220.0	307705.8
N	220	56.37	4101.5	3809.2
O	222	30.33	22594.0	20984.2
D	226	93.73	17894.0	19674.3
E	228	0.00	63040.0	68459.2
	230	175.29	11986.1	13178.6
#	232	104.31	18076.3	19874.8
2	234	257.25	36420.1	40043.7
Philadel.	924	297.47	5288.0	5814.1
Total this Node			179399.9	191838.1
	236	0.00	53512.2	43860.2
	238	35.44	30923.9	30943.6
N	240	65.01	5606.8	6076.0
O	242	84.12	3230.5	3232.5
D	244	194.55	11111.1	12353.3
E	246	59.97	3329.7	3702.0
	248	95.56	12462.3	13855.5
#	250	154.10	4125.9	4587.2
3	252	145.76	15731.7	17490.4
	927	104.51	941.0	1046.2
Wash.DC	928	99.32	1411.5	1569.3
	929	83.74	337.8	375.6
	254	252.00	9899.3	14137.2
	256	180.67	6367.9	9093.9
	932	254.68	1155.2	1649.8
Total this Node			160146.7	163972.7
	420	164.02	4665.2	5941.1
	422	226.14	18545.2	23827.8

Traffic between nodes of the backbone network and LATA access points

Node #	Lata #	Dist.to Node,miles	Origtg.BH Erlang	Termtg.BH Erlang
	424	305.36	11588.1	14757.2
	426	354.93	7762.0	9884.8
	428	352.72	3606.3	4592.5
N	949	326.06	7242.6	9223.3
O	951	403.08	8671.1	11042.5
D	430	136.19	9186.0	12976.2
E	432	266.29	5629.1	7963.8
	434	193.25	7148.8	10113.8
#	436	265.37	4577.0	6475.4
4	438	0.00	36293.4	44691.5
	440	222.96	6632.6	8167.4
	442	139.94	4625.7	5877.4
Atlanta	444	149.90	6405.3	7887.5
	446	76.52	5041.6	6208.2
	468	336.57	13779.3	17657.8
	470	213.45	15760.4	19998.6
	472	102.69	5466.7	6895.2
	474	154.16	9654.7	12251.0
	956	231.02	6041.5	7416.8
	476	140.76	14419.5	20761.9
	477	142.32	6980.0	10050.2
	478	89.92	8384.9	12072.9
	480	300.76	5133.4	7391.3
	482	351.54	17157.7	28471.2
	484	361.08	2427.8	4045.5
Total this Node			252826.2	336642.6
N	448	528.41	5531.0	5251.9
O	450	442.95	3141.5	2983.0
D	452	315.84	11826.1	11229.4
E	454	287.80	7483.8	7106.2
	456	233.25	3663.1	3478.2
#	458	194.42	13354.5	12680.6
12	460	0.00	44854.5	42591.2
	939	116.39	7568.7	7186.8
	952	198.19	29680.6	28183.0
Miami	953	397.99	2438.0	2315.0
Total this Node			129541.8	123005.4
	486	178.19	10938.6	9976.4
	488	331.26	8697.5	7932.4
	490	441.42	7057.2	6436.4
	492	366.77	6256.1	5705.7
	526	222.28	3193.9	3209.5
N	528	291.16	13424.8	13490.3
O	530	291.76	3081.4	3096.4
D	536	187.38	21385.5	17491.2
E	538	233.37	13314.1	10889.6

Traffic between nodes of the backbone network and LATA access points

Node #	Lata #	Dist.to Node,miles	Origtg.BH Erlang	Termtg.BH Erlang
Node #5 Dallas	540	571.78	5732.0	4435.9
	542	314.08	4990.2	3861.8
	544	298.43	3000.9	2322.3
	546	333.66	4848.4	3766.1
	548	122.98	2764.8	2139.7
	550	173.54	2349.0	1817.8
	552	0.00	44293.8	34278.0
	554	120.67	8283.7	6488.5
	556	87.97	4967.7	3844.4
	558	181.24	7901.2	6114.5
	560	223.04	44968.1	34799.8
	562	243.67	5428.5	4201.0
	564	343.26	7631.4	5905.8
	566	250.95	17544.4	13577.2
	568	452.32	6855.9	5305.6
	570	146.99	1933.1	1496.0
	961	233.03	2618.7	2026.6
Total this Node			263461.2	214609.1
Node #6 Phoenix	664	328.99	15920.0	16528.2
	666	0.00	29616.2	26393.1
	668	106.53	9664.4	8612.6
Total this Node			55200.6	51533.9
Node #7 LosAngel.	730	0.00	171894.7	111477.7
	732	112.49	29765.1	19303.3
	734	101.74	6287.8	4077.8
	740	162.53	6864.5	4451.8
	973	100.25	112.5	73.0
Total this Node			214924.6	139383.6
Node #8 SanFranc.	720	184.39	4776.2	3478.2
	721	417.23	6725.4	4897.6
	722	0.00	79266.2	55246.5
	724	137.87	6150.3	4286.6
	726	74.00	18612.8	12972.6
	728	161.78	12961.5	9033.8
	736	88.50	4572.3	3186.8
	738	62.12	10763.1	7501.6
	Total this Node		143827.8	100603.7
Node #13 Seattle	652	404.22	8269.5	7424.3
	960	258.77	1723.7	1538.4
	670	250.83	10607.9	8561.4
	672	146.22	24442.0	19559.3
	674	0.00	36935.4	28225.9
Total this Node	676	229.14	13414.6	10338.6
			95393.1	75648.0

Traffic between nodes of the backbone network and LATA access points

Node #	Lata #	Dist.to Node,miles	Origtg.BH Erlang	Termtg.BH Erlang
	620	76.48	8899.7	9289.1
Node #14	624	135.35	4247.3	4433.1
	626	59.00	5397.3	5633.5
Mpls.St.P	628	0.00	30305.9	31632.2
	630	230.53	4291.1	4869.6
	632	232.78	13304.4	15140.9
	634	272.82	9469.1	10434.9
	635	220.76	7934.7	9030.0
Total this Node			83849.5	90463.3
	636	638.46	9569.2	8373.6
N	638	526.86	4158.4	3678.1
O	640	499.17	7895.0	7825.8
D	644	486.11	12462.5	11325.1
E	646	358.80	4781.5	4281.8
	958	442.75	5530.6	4952.6
#	648	587.85	5951.8	5657.0
9	650	450.36	3611.1	3432.2
	654	223.75	6026.4	5746.4
Denver	656	0.00	33512.2	27535.7
	658	62.80	9197.8	7557.5
	660	369.76	16833.3	18100.0
Total this Node			119529.9	108466.0
	320	307.84	20198.7	25915.9
	322	365.25	6005.8	7705.7
	324	275.79	21029.7	26982.1
	325	321.34	11860.5	15217.5
	326	211.63	12181.6	15629.5
	328	231.71	11208.9	14381.5
	922	251.53	15577.4	20669.7
	923	276.66	6166.3	7911.7
	330	267.77	3247.1	4470.8
N	332	72.82	6978.3	9607.9
O	334	130.77	4663.9	6421.4
D	336	164.19	17969.3	24740.6
E	338	195.00	4681.5	6445.6
	937	201.16	1566.4	2156.6
#	938	166.16	1381.6	1902.2
10	340	236.60	52265.6	62687.6
	342	320.04	3271.7	3925.5
	344	215.36	9970.3	11958.4
Chicago	346	168.00	5495.3	6591.0
	348	124.94	20667.9	24789.1
	350	168.26	11049.6	13666.7
	352	279.82	5182.0	6409.3
	354	121.12	9119.9	11279.9

EXHIBIT 5.28 TRAFFIC IN LATA ACCESS LINKS OF THE 15-NODE NETWORK, Page 5 of 5

Traffic between nodes of the backbone network and LATA access points

Node #	Lata #	Dist.to Node,miles	Origtg.BH Erlang	Termtg.BH Erlang
	356	81.14	21139.3	26146.1
	358	0.00	85210.3	99023.1
	360	79.47	3825.4	4385.9
	362	343.45	3857.1	4422.3
	364	105.92	2832.1	3247.1
	366	118.70	2377.7	2726.1
	368	129.68	5347.2	6130.6
	370	124.72	3318.2	3804.4
	374	177.02	4131.9	4737.3
	376	237.12	1944.4	2229.3
	976	168.67	2948.3	3380.3
	977	155.02	1807.0	2071.8
	978	216.57	1764.8	2023.4
Total this Node			402243.0	495793.9
N	462	241.12	5817.3	8226.0
O	464	177.46	6443.3	9485.0
D	466	312.00	13295.2	19571.7
E	520	0.00	40890.1	46781.7
	521	106.65	2332.6	2714.0
#	522	194.04	8224.2	9569.0
11	524	237.96	24727.1	28651.0
	532	392.49	13693.1	15696.5
St.Louis	534	296.11	8799.2	10086.6
Total this Node			124222.1	150781.5

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Origtg.BH Erlang	Termtg.BH Erlang
	120	160.07	12689.9	14486.7
	122	32.24	12017.6	12110.1
Node # 15	124	183.49	6263.1	6649.2
	126	80.50	10318.8	10049.7
Boston	128	0.00	64508.7	62826.1
	130	41.50	11174.0	12072.2
Total this Node			116972.1	118194.0
Node # 1	920	97.16	38516.5	37176.7
	132	0.00	141849.4	132975.9
New York	133	64.90	9500.2	8904.5
	134	131.37	16203.2	15187.2
	224	9.88	78089.8	67804.9
Total this Node			284159.2	262049.3
Node # 16	136	138.35	21893.4	21283.3
	138	160.56	8893.3	8645.5
Buffalo	140	0.00	22700.6	22068.0
	974	66.33	13467.4	13092.1
Total this Node			66954.6	65089.0
	220	56.37	4216.0	3947.9
Node # 2	222	30.33	23225.1	21748.2
	226	93.73	18393.8	20390.6
Philadel.	228	0.00	64800.9	70951.6
	230	175.29	12320.9	13658.4
	232	104.31	18581.2	20598.4
Total this Node			141537.9	151295.1
Node # 19	234	0.00	39413.5	42764.6
Pittsbrg.	924	115.83	5722.6	6209.1
Total this Node			45136.1	48973.7
N	236	0.00	53978.3	43787.2
O	238	35.44	31193.3	30892.1
D	240	65.01	5655.6	6065.9
E	242	84.12	3258.6	3227.1
	244	194.55	11207.9	12332.7
#	246	59.97	3358.7	3695.8
3	248	95.56	12570.9	13832.5
	250	154.10	4161.9	4579.6
Wash.DC	252	145.76	15868.7	17461.3
	927	104.51	949.2	1044.5
	928	99.32	1423.8	1566.7
	929	83.74	340.7	374.9
	254	252.00	9985.6	14113.7
	256	180.67	6423.4	9078.8
	932	254.68	1165.3	1647.0

EXHIBIT 5.29 TRAFFIC IN LATA ACCESS LINKS OF THE 23-NODE NETWORK, Page 2 of 5

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Origtg.BH Erlang	Termtg.BH Erlang
Total this Node			161541.9	163699.9
	320	0.00	24435.0	30332.8
	322	60.35	7265.4	9019.0
Node # 17	324	125.58	25440.3	31580.7
	325	30.05	14348.0	17811.1
Cleveland	326	96.21	14736.4	18293.3
	328	177.19	13559.8	16832.7
	922	221.77	18844.5	24192.5
	923	66.81	7459.6	9260.1
Total this Node			126089.0	157322.3
	330	267.77	3780.1	5907.0
N	332	72.82	8123.7	12694.4
O	334	130.77	5429.4	8484.3
D	336	164.19	20918.7	32688.4
E	338	195.00	5449.9	8516.3
	937	201.16	1823.5	2849.4
#	938	166.16	1608.3	2513.3
1	350	168.26	12863.3	18057.1
0	352	279.82	6032.5	8468.3
	354	121.12	10616.8	14903.5
	356	81.14	24609.0	34545.4
Chicago	358	0.00	99196.5	130833.7
	360	79.47	4453.3	5794.9
	362	343.45	4490.2	5842.9
	364	105.92	3296.9	4290.2
	366	118.70	2768.0	3601.8
	368	129.68	6224.8	8100.1
	370	124.72	3862.8	5026.5
	374	177.02	4810.1	6259.1
	376	237.12	2263.6	2945.5
	976	168.67	3432.3	4466.2
	977	155.02	2103.6	2737.4
	978	216.57	2054.4	2673.3
Total this Node			240211.9	332198.9
	340	0.00	65792.0	73340.5
Node # 18	342	360.84	4118.4	4592.6
	344	88.01	12550.6	13990.5
Detroit	346	81.06	6917.4	7711.1
	348	139.67	26016.7	29001.7
Total this Node			115395.1	128636.5
	420	164.02	4730.7	5941.0
	422	226.14	18805.6	23827.8
N	424	305.36	11750.8	14757.2
O	426	354.93	7871.0	9884.8

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Origtg.BH Erlang	Termtg.BH Erlang
D	428	352.72	3656.9	4592.5
E	949	326.06	7344.3	9223.3
	951	403.08	8792.8	11042.5
#	430	136.19	9315.0	12976.2
	432	266.29	5708.2	7963.8
4	434	193.25	7249.2	10113.8
	436	265.37	4641.3	6475.4
	438	0.00	36803.0	44691.4
Atlanta	440	222.96	6725.7	8167.4
	442	139.94	4690.7	5877.4
	444	149.90	6495.3	7887.5
	446	76.52	5112.4	6208.2
	468	336.57	13972.7	17657.8
	470	213.45	15981.7	19998.6
	472	102.69	5543.5	6895.2
	474	154.16	9790.3	12251.0
	956	231.02	6126.3	7416.8
	476	140.76	14622.0	20761.9
	477	142.32	7078.0	10050.2
	478	89.92	8502.6	12072.9
	480	300.76	5205.5	7391.3
	482	351.54	17398.6	28471.2
	484	361.08	2461.9	4045.5
Total this Node			256376.2	336642.4
	452	315.84	12460.5	11568.0
Node # 12	454	287.80	7885.3	7320.5
	456	233.25	3859.6	3583.1
Miami	458	194.42	14070.8	13062.9
	460	0.00	47260.6	43875.3
Total this Node			85536.8	79409.7
Node # 20	448	333.08	5923.2	5675.1
Tampa	450	245.21	3364.3	3223.4
	939	96.96	8105.5	7765.9
	952	0.00	31785.4	30453.9
	953	202.68	2610.9	2501.5
Total this Node			51789.3	49619.9
	486	214.21	12333.6	9955.9
N	488	208.49	9806.7	7916.1
O	490	323.58	7957.2	6423.2
D	492	260.36	7053.9	5694.0
E	540	671.73	6463.0	4426.8
	542	423.76	5626.6	3853.9
#	558	142.54	8908.8	6102.0
2	560	0.00	50703.0	34728.4
1	562	84.26	6120.9	4192.4

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Origtg.BH Erlang	Termtg.BH Erlang
Houston	564	181.06	8604.7	5893.7
	566	184.66	19781.9	13549.4
	568	277.32	7730.3	5294.8
	570	84.15	2179.7	1492.9
	961	320.34	2952.7	2022.4
Total this Node			156222.9	111545.9
Node # 5	544	298.43	3473.6	3486.5
	546	333.66	5612.1	5654.1
	548	122.98	3200.4	3212.3
	550	173.54	2719.0	2729.1
	552	0.00	51270.8	51461.8
	554	120.67	9588.5	9741.3
Dallas	556	87.97	5750.2	5771.7
			81614.6	82056.8
Total this Node				
Node # 22	526	174.62	3703.0	5001.1
	528	300.73	15564.5	21020.7
	530	323.83	3572.5	4824.9
	536	0.00	24794.1	27255.1
	538	97.50	15436.2	16968.4
Total this Node			63070.3	75070.1
Node # 23	524	0.00	24565.8	27538.8
	532	176.84	13603.8	15087.2
	534	58.69	8741.8	9695.1
	644	164.75	12335.9	13621.5
	646	235.61	4732.9	5150.1
	958	162.86	5474.4	5956.9
Total this Node			69454.6	77049.6
Node # 11	462	241.12	6043.8	8545.6
	464	177.46	6694.2	9853.6
	466	312.00	13813.0	20332.1
	520	0.00	42482.6	48599.3
	521	106.65	2423.4	2819.5
	522	194.04	8544.4	9940.8
Total this Node			80001.6	100090.8
Node # 14	620	76.48	9000.2	11416.8
	624	135.35	4295.2	5448.5
	626	59.00	5458.2	6923.8
	628	0.00	30648.1	38877.3
	630	230.53	4339.6	5985.0
	632	232.78	13454.6	18608.8
	634	272.82	9576.0	12825.0
	635	220.76	8024.3	11098.2
Total this Node			84796.3	111183.5

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Origtg.BH Erlang	Termtg.BH Erlang
N	636	638.46	16721.1	9267.7
O	638	526.86	7266.2	4070.9
D	640	499.17	13795.6	8661.4
E	648	587.85	10400.0	6261.0
	650	450.36	6309.9	3798.7
#	654	223.75	10530.3	6360.0
9	656	0.00	58558.5	30475.9
	658	62.80	16072.1	8364.5
Denver	660	369.76	29414.2	20032.6
Total this Node			169067.9	97292.6
Node # 6	664	328.99	16092.1	16528.2
Phoenix	666	0.00	29936.4	26393.2
	668	106.53	9768.9	8612.6
Total this Node			55797.3	51534.0
	730	0.00	173952.4	111237.8
Node # 7	732	112.49	30121.4	19261.8
Los Angel	734	101.74	6363.1	4069.0
	740	162.53	6946.7	4442.2
	973	100.25	113.9	72.8
Total this Node			217497.4	139083.7
N	720	184.39	4939.4	3478.2
O	721	417.23	6955.2	4897.6
D	722	0.00	81974.4	55246.5
E	724	137.87	6360.4	4286.6
	726	74.00	19248.7	12972.6
#	728	161.78	13404.4	9033.8
8	736	88.50	4728.5	3186.8
SanFranc.	738	62.12	11130.8	7501.6
Total this Node			148741.8	100603.7
	652	404.22	8350.2	7424.3
Node # 13	960	258.77	1740.5	1538.4
	670	250.83	10711.5	8561.4
Seattle	672	146.22	24680.7	19559.3
	674	0.00	37296.0	28225.8
	676	229.14	13545.6	10338.6
Total this Node			96324.5	75647.9

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Orig.BH Erlang	Termtg.BH Erlang
	120	160.07	12589.1	14414.0
	122	32.24	11922.1	12049.4
Node #15	124	183.49	6213.4	6615.9
	126	80.50	10236.9	9999.3
Boston	128	0.00	63996.4	62511.0
	130	41.50	11085.2	12011.7
	920	92.66	40199.2	38701.5
Total this Node			156242.3	156302.7
N	132	0.00	142459.1	133083.2
O	133	64.90	9541.1	8911.7
D	134	131.37	16272.9	15199.5
E	136	193.50	20014.2	18694.0
	138	135.92	8130.0	7593.7
#	140	291.19	20752.1	19383.3
1	974	249.49	12311.5	11499.4
New York	224	9.88	78425.4	67859.6
Total this Node			307906.3	282224.4
	220	56.37	4267.7	3975.8
Node # 2	222	30.33	23509.8	21901.7
	226	93.73	18619.3	20534.6
Philadel.	228	0.00	65595.2	71452.6
	230	175.29	12471.9	13754.8
	232	104.31	18809.0	20743.9
Total this Node			143272.9	152363.5
	236	0.00	54776.1	43859.3
	238	35.44	31654.3	30942.9
	240	65.01	5739.2	6075.9
	242	84.12	3306.8	3232.4
N	244	194.55	11373.5	12353.0
O	246	59.97	3408.4	3701.9
D	248	95.56	12756.6	13855.3
E	250	154.10	4223.4	4587.1
	252	145.76	16103.3	17490.1
#	927	104.51	963.2	1046.2
3	928	99.32	1444.8	1569.3
	929	83.74	345.8	375.6
Wash.DC	254	252.00	10133.1	14136.9
	256	180.67	6518.3	9093.8
	932	254.68	1182.5	1649.8
Total this Node			163929.3	163969.5
	420	164.02	4908.4	5971.2
	422	226.14	19511.9	23948.9
	424	305.36	12192.2	14832.2
	426	354.93	8166.7	9935.0

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Orig.BH Erlang	Termtg.BH Erlang
	428	352.72	3794.3	4615.9
	949	326.06	7620.1	9270.1
	951	403.08	9123.1	11098.6
N	430	136.19	9664.9	13042.1
O	432	266.29	5922.6	8004.3
D	434	193.25	7521.5	10165.2
E	436	265.37	4815.6	6508.3
	438	0.00	38185.3	44918.6
#	440	222.96	6978.4	8208.9
4	442	139.94	4866.9	5907.3
	444	149.90	6739.2	7927.6
	446	76.52	5304.4	6239.8
Atlanta	472	102.69	5751.7	6930.2
	474	154.16	10158.0	12313.3
	956	231.02	6356.4	7454.5
	476	140.76	15171.2	20867.4
	477	142.32	7343.9	10101.3
	478	89.92	8822.0	12134.3
	480	300.76	5401.0	7428.9
	482	351.54	18052.1	28616.0
	484	361.08	2554.4	4066.1
Total this Node			234926.2	300505.9
	448	528.41	5719.4	5216.1
N	450	442.95	3248.5	2962.7
O	452	315.84	12229.0	11152.9
D	454	287.80	7738.7	7057.8
E	456	233.25	3787.8	3454.5
	458	194.42	13809.3	12594.1
#	460	0.00	46382.3	42300.8
1	939	116.39	7826.5	7137.8
2	952	198.19	30691.6	27990.8
Miami	953	397.99	2521.0	2299.2
Total this Node			133954.3	122166.6
	526	222.28	3654.4	4691.4
N	528	291.16	15360.5	19719.1
O	530	291.76	3525.7	4526.1
D	536	187.38	24469.0	25567.5
E	538	233.37	15233.8	15917.7
	548	122.98	3163.5	3127.6
#	550	173.54	2687.7	2657.2
5	552	0.00	50680.4	50105.1
	554	120.67	9478.1	9484.5
Dallas	556	87.97	5684.0	5619.5
Total this Node			133937.2	141415.7
	330	267.77	3847.7	5031.8

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Orig.BH Erlang	Termtg.BH Erlang
	332	72.82	8268.9	10813.7
	334	130.77	5526.5	7227.3
	336	164.19	21292.8	27845.5
	338	195.00	5547.4	7254.6
	937	201.16	1856.1	2427.3
	938	166.16	1637.1	2140.9
	350	168.26	13093.3	15381.9
	352	279.82	6140.4	7213.7
N	354	121.12	10806.6	12695.5
O	356	81.14	25049.1	29427.4
D	358	0.00	100970.5	111450.3
E	360	79.47	4533.0	4936.4
	362	343.45	4570.5	4977.3
#	364	105.92	3355.9	3654.6
1	366	118.70	2817.5	3068.2
0	368	129.68	6336.1	6900.0
	370	124.72	3931.9	4281.8
Chicago	374	177.02	4896.1	5331.8
	376	237.12	2304.1	2509.1
	976	168.67	3493.6	3804.6
	977	155.02	2141.3	2331.8
	978	216.57	2091.2	2277.3
Total this Node			244507.8	282982.6
	234	114.69	34597.7	39150.6
	924	92.80	5023.4	5684.4
	320	0.00	23123.3	27951.7
N	322	60.35	6875.4	8311.0
O	324	125.58	24074.7	29101.6
D	325	30.05	13577.8	16413.0
E	326	96.21	13945.4	16857.3
	328	177.19	12831.9	15511.3
#	922	221.77	17832.9	22293.4
1	923	66.81	7059.2	8533.2
7	340	90.96	59833.3	67612.0
	342	449.06	3745.4	4233.9
Cleveland	344	176.11	11413.9	12897.8
	346	169.83	6290.9	7108.8
	348	227.35	23660.4	26736.4
Total this Node			263885.4	308396.3
	486	214.21	12394.9	13820.8
N	488	208.49	9855.4	10989.2
O	490	323.58	7996.7	8916.7
D	492	260.36	7089.0	7904.5
E	558	142.54	8953.1	8470.8
	560	0.00	50954.9	48210.2
#	562	84.26	6151.3	5819.9

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Orig.BH Erlang	Termtg.BH Erlang
1	564	181.06	8647.4	8181.6
6	566	184.66	19880.2	18809.3
	568	277.32	7768.7	7350.2
Houston	570	84.15	2190.5	2072.5
	961	320.34	2967.4	2807.5
Total this Node			144849.3	143353.3
	620	76.48	9036.9	8969.9
	624	135.35	4312.8	4280.8
Node # 14	626	59.00	5480.5	5439.9
	628	0.00	30773.2	30545.1
Mnpls.StP	630	230.53	4357.3	4702.3
	632	232.78	13509.5	14620.6
	634	272.82	9615.1	10076.3
	635	220.76	8057.0	8719.7
	636	213.68	9885.3	9865.6
	638	382.84	4295.7	4333.5
	640	197.14	8155.8	9220.2
Total this Node			107479.2	110773.9
N	644	486.11	12965.8	12494.4
O	646	358.80	4974.6	4723.9
D	958	442.75	5753.9	5464.0
E	648	587.85	6192.1	6241.0
	650	450.36	3756.9	3786.6
#	654	223.75	6269.7	6339.7
9	656	0.00	34865.6	30378.8
	658	62.80	9569.3	8337.8
Denver	660	369.76	17513.1	19968.8
Total this Node			101861.0	97735.1
	540	0.00	5484.2	6101.4
	542	259.51	4774.5	5311.8
	544	296.81	2871.1	3194.3
Node # 6	546	356.04	4638.8	5180.2
	664	227.80	13113.2	16737.0
El Paso	666	347.02	24394.7	26726.6
	668	265.60	7960.5	8721.4
Total this Node			63237.2	71972.7
	730	0.00	177154.1	107631.3
Node # 7	732	112.49	30675.8	18637.3
	734	101.74	6480.2	3937.1
Los Angls	740	162.53	7074.6	4298.2
	973	100.25	116.0	70.5
Total this Node			221500.6	134574.4
	720	184.39	5030.1	3380.9

Traffic between nodes of the backbone network and LATA access points

Node #	LATA #	Dist.to Node,miles	Orig.BH Erlang	Termtg.BH Erlang
	721	417.23	7083.0	4760.7
Node # 8	722	0.00	83480.4	53701.4
	724	137.87	6477.3	4166.7
San Franc	726	74.00	19602.3	12609.8
	728	161.78	13650.6	8781.2
	736	88.50	4815.4	3097.6
	738	62.12	11335.3	7291.8
Total this Node			151474.4	97790.0
	652	404.22	8504.4	7298.8
Node # 13	960	258.77	1772.7	1512.4
	670	250.83	10909.2	8416.7
Seattle	672	146.22	25136.4	19228.7
	674	0.00	37984.7	27748.7
	676	229.14	13795.7	10163.9
Total this Node			98103.0	74369.1
	462	241.12	5895.9	8110.9
N	464	177.46	6530.4	9352.3
O	466	312.00	13475.0	19297.8
D	468	238.25	15593.6	19146.0
E	470	252.35	17835.7	21684.1
	520	0.00	41443.0	46127.0
#	521	106.65	2364.1	2676.0
1	522	194.04	8335.3	9435.1
1	524	237.96	25061.4	28250.0
	532	392.49	13878.2	15476.8
St.Louis	534	296.11	8918.2	9945.4
Total this Node			159330.8	189501.5

EXHIBIT 5.31 Hourly Calling Rates

Number of originating calls/hour

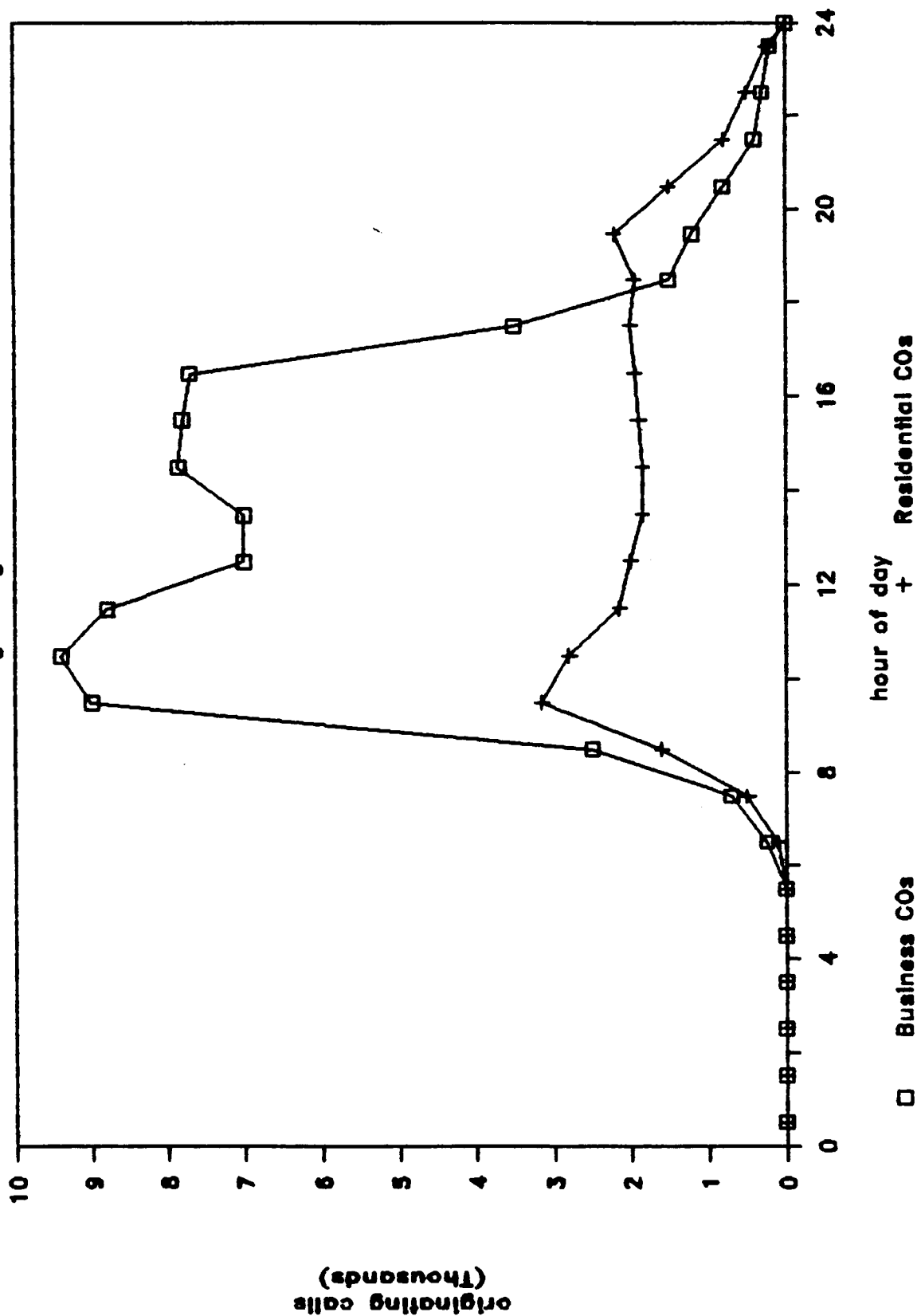


EXHIBIT 5.32 HOURLY VARIATION OF ORIGINATING CALLING RATE

Hour of Day decimal hr:min	Hourly Calling Rate Number of Originating Calls	
	Business	Residential
0.5 00:30	0	0
1.5 01:30	0	0
2.5 02:30	0	0
3.5 03:30	0	0
4.5 04:30	0	0
5.5 05:30	0	0
6.5 06:30	250	100
7.5 07:30	700	500
8.5 08:30	2500	1600
9.5 09:30	9000	3150
10.5 10:30	9400	2800
11.5 11:30	8800	2150
12.5 12:30	7000	2000
13.5 13:30	7000	1850
14.5 14:30	7850	1850
15.5 15:30	7800	1900
16.5 16:30	7700	1950
17.5 17:30	3500	2000
18.5 18:30	1500	1950
19.5 19:30	1200	2200
20.5 20:30	800	1500
21.5 21:30	400	800
22.5 22:30	300	500
23.5 23:30	200	250

avg. BH Callg. Rate:	8068.75	2163.64
Number Calls/Day:	75900	29050
avg. hourly Calls:	3162.50	1210.42
equiv. Pk-hr Calls:	9.407	13.426
Bus. CO BH traffic:	68.2%	31.8%
combined Bus/Res Pk-hr conversion:		10.7

Source: Bellcore SP EDP-000191, Issue 1, April 1985

SECTION 6.0
FIBER OPTIC SYSTEM FINANCIAL MODEL

6.1 ANNUAL COST ECONOMIC ANALYSIS

Using information obtained from the communications common carrier industry, from equipment manufacturers, and from several specialized common carriers, representative first cost and continuing operating expense data have been developed for a nation-wide fiber optic communications transmission system network.

Economic analyses of the four basic transmission network configurations have been made on the basis of both first cost and annual cost. First cost analysis is useful in determining the magnitude of the investment required to build the network under study. First cost information sheds little light on the overall cost of owning and operating a network, however, and continuing costs must be identified in an annual cost analysis in order to evaluate the true cost of an operating network. Annual cost analysis makes it possible to determine the revenues necessary to operate the network profitably, and information obtained from such studies is vital in developing a rate structure for the network under study.

The subject of annual costs and annual cost analyses is covered in more detail in Appendix 6.1.

6.1.1 Fiber Optic System Financial Model

The fiber optic transmission system financial model is based on the prototype 11-node, 15-node, 17-node, and 23-node transmission networks developed in the network concept definition. The model has been divided into two major segments -- the inter-nodal network and the LATA access network -- for each prototype network. Each model segment is evaluated and analyzed separately, and the results are then combined, making it possible to identify the various cost drivers and to note their effect on various levels of the total network.

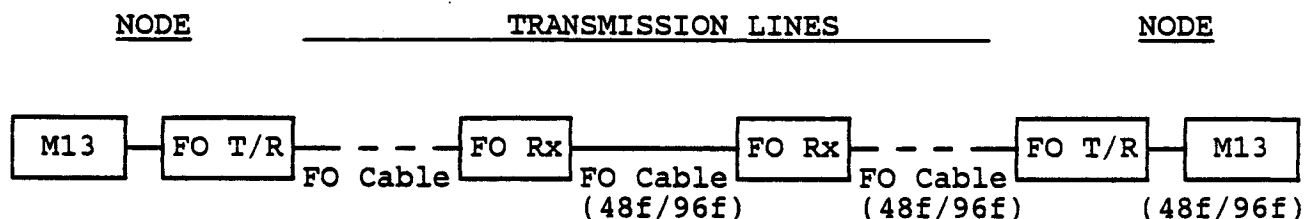
6.1.1.1 Inter-Nodal Network Model

Inter-nodal circuit links are assumed to follow the shortest paths between nodes using the routes shown on the maps in Section 5 for each prototype network design. In any specific link between nodes, the total traffic cross-section is the sum of all traffic routed over that link. The circuit groups for each inter-nodal link are sized based on the total traffic assigned to the link. Because of the size of the traffic load in each link, an average maximum circuit traffic-handling efficiency of 75 percent is assumed, resulting in the number of circuits in a link

being equal to the total link traffic load in Erlangs divided by .75.

The following is a block diagram of the financial model of the inter-nodal circuits in the node networks:

INTER-NODAL CIRCUITS



<u>Year</u>	<u>Line Rate</u>	<u>Repeater Spacing</u>
1983	405 Mbps	25 Mi
1985	405 Mbps/565 Mbps	25 Mi
1990	810 Mbps/1.7 Gbps	50 Mi
1995	1.7 Gbps/4.05 Gbps	100 Mi
2000	4.05 Gbps/8.1 Gbps	150 Mi

It is assumed for inter-nodal network modeling purposes that the voice circuits are demultiplexed only to the DS-1 level (1.544 mbps, 24 voice channels) at the nodes. Interconnections with LATA access circuits are made in groups of 24 voice circuits at the DS-1 level.

The following average cost data are used in the inter-nodal network financial models:

	<u>First Cost</u>	<u>Annual Cost (%FC)</u>	
		<u>Op/Mtce</u>	<u>Ad Val. Taxes</u>
48 fiber Cable	\$ 28560 /mile	2.5%	2.25%
48 fiber Cable Splicing (5 km)	\$ 1932 /mile	2.5%	2.25%
96 fiber Cable	\$ 54048 /mile	2.5%	2.25%
96 fiber Cable Splicing (5 km)	\$ 3622 /mile	2.5%	2.25%
FO Cable Installation	\$ 15840 /mile	2.5%	2.25%
405 Mbps FO Trans/Rcvr	\$ 18000	5.0%	2.30%
405 Mbps FO Line Repeater	\$ 12000	5.0%	2.30%
Terminal/Repeater Bldng, Power	\$ 150000	3.0%	2.10%
M13 Multiplexer	\$ 15000	5.0%	2.30%

To determine the total annual costs associated with each model, accelerated write-off is assumed for the fiber optic cable (10-year life) and the associated electronic equipment (5-year life). The financial structure assumes an objective return on investment (ROI) of 15 percent annually, a corporate debt ratio of 50 percent, and an average interest rate on debt capital of approximately 14.4 percent. Overall income tax rate is estimated at 50 percent.

Because mileage between nodes is calculated on a point-to-point basis using V and H coordinates, an additional mileage allowance is made to account for indirect fiber optic cable routes between nodes. This is covered by the Mileage Factor, which is estimated at 1.15 for inter-nodal circuits, based on the assumption that the long inter-nodal circuits will more nearly approximate the point-to-point mileage than the average shorter terrestrial circuits (which usually are 35 to 40 percent longer than the point-to-point distance).

Traffic data have been calculated using 1990 estimates for AT&T inter-LATA voice traffic only. Adjustments for private line and other common carrier (OCC) inter-LATA traffic and for total traffic variations ranging from 13.5 to 15 percent of inter-LATA voice traffic are made for the different study years. Also, a uniform average annual voice traffic growth rate of approximately 11 percent is assumed, leading to the development of a Traffic Factor used to multiply the 1990 inter-LATA voice traffic data so that it can be applied to a specific study year. The Traffic Factor is calculated as shown in the following table:

<u>Year</u>	<u>Growth Factor</u>	<u>PL, OCC Factor</u>	<u>Traffic Factor</u>
1983	.1	.135	.5675
1985	.12	.14	.684
1990	.2	.14	1.14
1995	.34	.15	1.955
1995 + 30%			2.5415
1995 - 30%			1.3685
2000	.57	.15	3.2775

where Traffic Factor = $(1 + (\text{PL, OCC Factor}))(\text{Growth Factor}/1990 \text{ Growth Factor})$

Initial assignment of 80 percent of the installed circuit facilities and equipment is assumed in the financial models. Assigning only 80 percent of the installed base initially makes room for short-term circuit growth and provides flexibility for circuit rearrangements and maintenance activity. The Initial Fill factor accounts for the provision of additional circuits beyond those required to meet the traffic estimates in order to provide flexibility.

Fiber optic transmission system protection on a 1:n basis where $n \leq 12$ is assumed in the financial models. This means that for every 11 working FO systems (or less), an additional equipped FO system is provided on a standby basis. In the models, a minimum of two FO systems is installed in each 12-system group, resulting in a protection ratio from 1:1 to 1:12 depending on the actual FO system requirements.

A number of technological assumptions are made in developing and costing the various node network models, as follows:

1983 Technology

- 405 Mbps line transmission rate (9 DS-3 or 6048 voice circuits)
- 40 km (25 mile) line repeater spacing
- 48 fiber FO cable

1985 Technology

- 405 Mbps (6048 voice ccts) and 565 Mbps (8064 voice ccts) line transmission rates
- 565 Mbps equipment cost = 1.1667 x 405 Mbps equipment cost
- 40 km (25 mile) line repeater spacing
- 48 fiber and 96 fiber FO cables

1990 Technology

- 810 Mbps (12,096 voice ccts) and 1.7 Gbps (24,192 voice ccts) line transmission rates
- ADPCM available to double voice channel capacity to 24,192 voice circuits and 48,384 voice circuits respectively
- 810 Mbps equipment cost = 1.75 x 405 Mbps equipment cost
- 1.7 Gbps equipment cost = 3.5 x 405 Mbps equipment cost
- 85 km (50 mile) line repeater spacing
- 48 fiber and 96 fiber FO cables
- MX3 for ADPCM cost = 1.75 x basic MX3 cost

1995 Technology

- 1.7 Gbps (24,192 voice ccts) and 4.05 Gbps (60,480 voice ccts) line transmission rates
- ADPCM available to double voice channel capacity to 48,384 voice circuits and 120,960 voice circuits respectively
- 1.7 Gbps equipment cost = 3.5 x 405 Mbps equipment cost

- 4.05 Gbps equipment cost = 8.75 x 405 Mbps equipment cost
- 170 km (100 mile) line repeater spacing
- 48 fiber and 96 fiber FO cables
- MX3 for ADPCM cost = 1.75 x basic MX3 cost

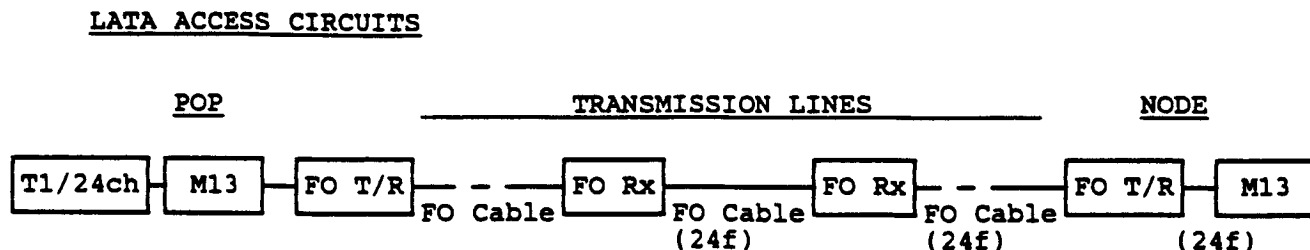
2000 Technology

- 4.05 Gbps (60,480 voice ccts) and 8.1 Gbps (120,960 voice ccts) line transmission rates
- ADPCM available to double voice channel capacity to 120,960 voice circuits and 241,920 voice circuits respectively
- 405 Gbps equipment cost = 8.75 x 405 Mbps equipment cost
- 8.1 Gbps equipment cost = 17.5 x 405 Mbps equipment cost
- 250 km (150 mile) line repeater spacing
- 48 fiber and 96 fiber FO cables
- MX3 for ADPCM cost = 1.75 x basic MX3 cost

6.1.1.2 LATA Access Network Model

LATA access circuits interconnect the designated Point-of-Presence (POP) in each LATA with the node to which the LATA is assigned. LATA access traffic is assumed to serve each POP individually; that is, no combining of traffic over routes is assumed as is done with inter-nodal traffic, even though in the practical situation some combining would undoubtedly be possible. Circuit groups for each LATA access link are sized using the traffic estimates. Because of the size of the traffic load in each link, an average maximum circuit traffic-handling efficiency of 75 percent is assumed, resulting in the number of circuits in a link being equal to the total link traffic load in Erlangs divided by .75.

Following is a block diagram of the financial model of the LATA access circuits in the LATA access networks:



<u>Year</u>	<u>Line Rate</u>	<u>Repeater Spacing</u>
1983	405 Mbps	25 Mi
1985	405 Mbps	25 Mi
1990	405 Mbps	50 Mi
1995	405 Mbps	50 Mi
2000	405 Mbps	50 Mi

It is assumed for LATA access network modeling purposes that the voice circuits are demultiplexed only to the DS-1 level (1.544 Mbps, 24 voice channels) at the nodes, but are demultiplexed completely to the DS-0 level (64 kbps voice channel) at the POPs. At the nodes, interconnections with LATA access circuits are made in groups of 24 voice circuits at the DS-1 level; at the POPs, switching between the inter-LATA network and trunks to the central offices serving the end-users occurs on an individual voice circuit basis.

The "home LATA area" serving each network node represents a special case in the LATA access model, since there are no inter-LATA circuits connecting the node with the POP. Multiplexing equipment is required to convert the voice circuits from the DS-1 level to the DS-0 level, but no other transmission system equipment is required. In most cases, the "home LATA area" carries the heaviest traffic load of any LATA in the group served by a particular node, and a substantial investment in T-1 multiplexing equipment (DS-1 to DS-0) is required. The term "channel" is used to describe the total number of inter-LATA circuits while the term "circuit" is used to describe the number of voice circuits needed to meet the LATA access traffic load requirements.

The following average cost data is used in the LATA access network financial models:

	<u>First Cost</u>	<u>Annual Cost (%FC)</u>	
		<u>Op/Mtce</u>	<u>Ad Val. Taxes</u>
24 fiber FO Cable	\$ 14280 /mile	2.5%	2.25%
24 fiber FO Cable Splicing (5 km)	\$ 966 /mile	2.5%	2.25%
FO Cable Installation	\$ 15840 /mile	2.5%	2.25%
405 mbps FO Trans/Rcvr	\$ 18000	5.0%	2.30%
405 mbps FO Line Repeater	\$ 12000	5.0%	2.30%
Controlled Envir. Vault (CEV), Power	\$ 35000	3.0%	2.10%
M13 Multiplexer	\$ 15000	5.0%	2.30%
T-1 Term. e/w 24 Voice Chan. (2-way)	\$ 5880	5.0%	2.30%

To determine the total annual costs associated with each model, accelerated write-off is assumed for the fiber optic cable (10-year life) and the associated electronic equipment (5-year life). The financial structure assumes an objective return on investment (ROI) of 15 percent annually, a corporate debt ratio of 50 percent, and an average interest rate on debt capital of approximately 14.4 percent. Overall income tax rate is estimated at 50 percent.

Because mileage between nodes is calculated on a point-to-point basis using V and H coordinates, an additional mileage allowance is made to account for indirect fiber optic cable routes between nodes and POPs. This is covered by the Mileage Factor, which is estimated at 1.35 for LATA access circuits, based on the assumption that the shorter LATA access circuits will be the typical 35 percent longer than the point-to-point distance between nodes and POPs.

Traffic data have been calculated using 1990 estimates for AT&T inter-LATA voice traffic only. Adjustments for private line and other common carrier (OCC) inter-LATA traffic and for total traffic variations ranging from 13.5 to 15 percent of inter-LATA voice traffic are made for the different study years. Also, a uniform average annual voice traffic growth rate of approximately 11 percent is assumed, leading to the development of a Traffic Factor used to multiply the 1990 inter-LATA voice traffic data so that it can be applied to a specific study year. The Traffic Factor is calculated as shown in the following table:

<u>Year</u>	<u>Growth Factor</u>	<u>PL, OCC Factor</u>	<u>Traffic Factor</u>
1983	.1	.135	.5675
1985	.12	.14	.684
1990	.2	.14	1.14
1995	.34	.15	1.955
1995 + 30%			2.5415
1995 - 30%			1.3685
2000	.57	.15	3.2775

where Traffic Factor = $(1 + (\text{PL, OCC Factor}))(\text{Growth Factor}/1990 \text{ Growth Factor})$

Initial assignment of 80 percent of the installed circuit facilities and equipment is assumed in the financial models. Assigning only 80 percent of the installed base initially makes room for short-term circuit growth and provides flexibility for circuit rearrangements and maintenance activity. The Initial Fill factor accounts for the provision of additional circuits beyond those required to meet the traffic estimates in order to provide flexibility.

Fiber optic transmission system protection on a 1:n basis where $n \leq 12$ is assumed in the financial models. This means that for every 11 working FO systems (or less), an additional equipped FO system is provided on a standby basis. In the models, a minimum of two FO systems is installed in each 12-system group, resulting in a protection ratio from 1:1 to 1:12 depending on the actual FO system requirements.

Technological assumptions made in developing and costing the inter-LATA circuit network models are as follows:

Common Assumptions

- 405 Mbps (6048 voice ccts) line transmission rate (1983-2000)
- 24 fiber FO cable (1983-2000)

1983 Technology

- 40 km (25 mile) line repeater spacing

1985 Technology

- 40 km (25 mile) line repeater spacing

1990, 1995, and 2000 Technology

- 85 km (50 mile) line repeater spacing
- ADPCM available to double voice channel capacity to 12,096 circuits per 405 Mbps FO transmission system
- MX3 for ADPCM cost = 1.75 x basic MX3 cost

6.1.2 Financial Model Study Results

For each of the prototype networks described and studied, traffic data and cost data corresponding with the technological assumptions for each year have been applied. The first cost and annual cost results for each study year - 1983, 1985, 1990, 1995, and 2000 - are shown in tabular form or graphically in the attached exhibits, as follows:

11 node Network (Inter-nodal)	Exhibits 6.1-6.14, 6.57-6.60
15 node Network (Inter-nodal)	Exhibits 6.15-6.28, 6.61-6.64
17 node Network (Inter-nodal)	Exhibits 6.29-6.42, 6.65-6.68
23 node Network (Inter-nodal)	Exhibits 6.43-6.56, 6.69-6.72
11 node Network (LATA Access)	Exhibits 6.73-6.80
15 node Network (LATA Access)	Exhibits 6.81
17 node Network (LATA Access)	Exhibits 6.82-6.89
23 node Network (LATA Access)	Exhibits 6.90

11 node Network (Combined Cost Summary)	Exhibit 6.91-6.99
15 node Network (Combined Cost Summary)	Exhibit 6.100 & 6.101
17 node Network (Combined Cost Summary)	Exhibit 6.102-6.110
23 node Network (Combined Cost Summary)	Exhibit 6.111 & 6.112

6.1.2.1 Inter-Nodal Network Study Results

The traffic routing matrix for each node network is listed in Exhibits 6.1 (11-node), 6.15 (15-node), 6.29 (17-node), and 6.43 (23-node). Routing for each network link can be traced from looking at the routes which have a traffic entry. For example, referring to Exhibit 6.1 (11-node), it can be seen that the New York-Los Angeles link (Link 1-7) is assigned a routing as follows:

1-2	New York - Philadelphia
2-3	Philadelphia - Washington, DC
3-4	Washington, DC - Atlanta
4-5	Atlanta - Dallas
5-6	Dallas - Phoenix
6-7	Phoenix - Los Angeles

The routing used for other links can be determined in a similar fashion by referring to the traffic routing matrix. The basic route assignment rule requires that the shortest routing between end points be used, in accordance with the available inter-nodal routes shown on the appropriate maps in Section 5.

The distribution of traffic over the links between nodes, based on the traffic routing matrix, is shown graphically in Exhibits 6.1A (11-node), 6.15A (15-node), 6.29A (17-node), and 6.43A (23-node). It can be seen that the traffic load varies among the links, with the variation being substantial in some network configurations (e.g. Exhibit 6.43A, 23-node).

First cost and annual cost tables are shown in Exhibits 6.2 to 6.14 for the 11-node network, Exhibits 6.16 to 6.28 for the 15-node network, Exhibits 6.30 to 6.42 for the 17-node network, and Exhibits 6.44 to 6.56 for the 23-node network. These first cost and annual cost tables provide a detailed breakdown of the financial model transmission system equipment costs on a link-by-link basis for the various study years, traffic loads, and equipment configurations.

Exhibits 6.2A and 6.2B through 6.14A and 6.14B show graphically the first cost and annual cost by equipment classification for each link in the 11-node network for the various study years and financial model configurations. A similar set of graphs is included in Exhibits 6.30A and 6.30B through 6.42A and 6.42B covering the first cost and annual cost by equipment classification for each link in the 17-node network.

These graphs together with the tables of Exhibits 6.2 through 6.14 and 6.30 through 6.42 show that the investment in M13 multiplex equipment and in FO transmitter/receiver equipment is sensitive to the quantity of circuits required. Similarly, the investment in buildings, power equipment, and FO cable placement is sensitive to the distance between points, while the investment in FO cable, FO cable splicing, and FO transmission system line repeaters is sensitive to both circuit quantity and distance. The investment in FO cable and FO cable splicing tends to be more strongly distance-sensitive, while the investment in FO line repeaters tends to be more circuit-sensitive. The increasingly dominant effect of the M13 multiplex equipment investment is apparent; if M13 multiplex equipment is excluded from consideration, the variation in cost per route mile among the different links is relatively small despite the variation in total traffic load. Although graphs covering each link in the other networks have not been plotted, similar results are obtained for the 15-node and 23-node networks.

A cost summary for each network showing the first cost and annual cost for each model configuration in each of the various study years is shown in tabular form, as follows:

11-node Network	Exhibit 6.57
15-node Network	Exhibit 6.61
17-node Network	Exhibit 6.65
23-node Network	Exhibit 6.69

Detailed breakdowns of the first cost and annual cost distributions for each of the models as a percentage of total cost, shown by equipment classification and by year, are included in exhibits, as follows:

11-node Network	Exhibits 6.58 & 6.59
15-node Network	Exhibits 6.62 & 6.63
17-node Network	Exhibits 6.66 & 6.67
23-node Network	Exhibits 6.70 & 6.71

Total dollar costs for the various equipment classifications are shown graphically for the various configurations and years, as follows:

11-node Network	Exhibits 6.60A, 6.60B, & 6.60C
15-node Network	Exhibits 6.64A, 6.64B, & 6.64C
17-node Network	Exhibits 6.68A, 6.68B, & 6.68C
23-node Network	Exhibits 6.72A, 6.72B, & 6.72C

As the traffic requirements increase and as the FO transmission system line rates increase, the dominant cost element becomes the M13 multiplex equipment used to demultiplex the voice circuits to the DS-1 level (1.544 mbps, 24 voice channels) for interconnection with the LATA access circuits.

6.1.2.2 LATA Access Network Study Results

First cost and annual cost tables are shown in Exhibits 6.73 to 6.79 for the 11-node network and in Exhibits 6.82 to 6.88 for the 17-node network. These first cost and annual cost tables provide a detailed breakdown of the LATA access transmission system equipment costs for each node for the various study years, traffic loads, and equipment configurations.

Exhibits 6.73A through 6.79A for the 11-node network and Exhibits 6.82A through 6.88A for the 17-node network show graphically, for the various study years and financial model configurations, the first cost and annual cost by equipment classification for the LATA access network associated with each node in the network.

These tables and graphs show that the investment in T1 and M13 multiplex equipment and in FO transmitter/receiver equipment is sensitive to the quantity of circuits required. The investment in controlled environment vaults (CEV), power equipment, and FO cable placement is sensitive to the distance between points, while the investment in FO cable, FO cable splicing, and FO transmission system line repeaters is sensitive to both circuit quantity and distance. The investment in FO cable and FO cable splicing tends to be more strongly distance-sensitive, while the investment in FO line repeaters tends to be more circuit sensitive. The average length of the LATA access network channels in some nodes is relatively low; consequently, the investment in FO transmission system line repeaters and CEVs is low.

Detailed tables and graphs covering each link in the 15 node and 17 node networks have not been plotted, but summary results of first costs and annual costs for each network are shown in tabular and graphic form, as follows:

11-node Network	Exhibits 6.80 & 6.80A
15-node Network	Exhibits 6.81 & 6.81A
17-node Network	Exhibits 6.89 & 6.89A
23-node Network	Exhibits 6.90 & 6.90A

These results show that the total cost, first cost or annual cost, for the LATA access portion of each network configuration increases as the traffic load rises; however, the total cost per circuit decreases as the traffic load increases. This suggests increasing efficiency of use of the various network components as the traffic load increases.

6.1.2.3 Combined LATA to LATA Network Study Results

First cost and annual cost data for the combined internodal and LATA access networks for each prototype network, broken down by basic circuit arrangement (i.e. line transmission rate and number of fibers in the FO cable), are shown as follows:

11-node Network	Exhibit 6.91
15-node Network	Exhibit 6.100
17-node Network	Exhibit 6.102
23-node Network	Exhibit 6.111

The combined annual cost data have been converted into revenue requirements to assist in estimating the user charges necessary to operate each of the prototype networks profitably. In a practical operating situation, the objective is to generate sufficient revenue to pay capital and operating costs, and to realize an objective return on investment. This is the basis for the concept of "revenue requirements", which is covered in more detail in Appendix 6.1. Annual costs can be converted to revenue requirements. i.e. the amount of revenue that must be realized from the investment in order to meet expenses and earn an after-tax return on the investment. Under these circumstances, the revenue requirements can be translated into the rates that must be charged to make the investment meet objectives. The annual cost calculations have been made using conventions that apply to comparative cost studies involving investments having first costs reasonably close to one another. Consequently, certain expense items that would be common to each competitive approach are not included -- administrative and general, marketing, commercial, traffic operations, etc. -- which in aggregate amount to approximately 4 percent of first cost. Thus, when calculating the revenue requirements, 4 percent of the total first cost is added to the total annual cost figure.

Having estimated total annual revenue requirements, it is possible to estimate the average revenue requirement per call-minute of use. As developed in Section 5, the traffic data used for designing the prototype network models is "busy-hour" traffic only. This is an estimate of the total traffic carried by the network during the busiest hour of the busiest day. Obviously, traffic is carried in varying amounts during the remaining hours of the day. Based on empirical data published by various telephone organizations, the average network circuit will be in use 642 minutes or 10.7 hours per average 24-hour day. Multiplying the usage per circuit by the total amount of traffic load (measured in Erlangs) provides the total call-minutes per day. From this, the average revenue requirement per call-minute is calculated.

A summary of revenue requirements is shown in tabular and graphic form, as follows:

11-node Network	Exhibits 6.99 & 6.99A
15-node Network	Exhibits 6.101 & 6.101A
17-node Network	Exhibits 6.110 & 6.110A
23-node Network	Exhibits 6.112 & 6.112A

The combined first costs and revenue requirements increase as the traffic load increases; the revenue requirements per circuit tend to decrease as the traffic load increases.

It is noteworthy that the average revenue requirement per call-minute is less than one cent for any traffic load or configuration of the combined internodal and LATA access network models.

Detailed first cost and revenue requirements data for the various equipment classifications have been assembled for the combined 11-node and combined 17-node networks. This information is presented in tabular and graphic form, for the various line transmission rate and FO cable configurations, in Exhibits 6.92 and 6.92A through 6.98 and 6.98A for the 11-node network and in Exhibits 6.103 and 6.103A through 6.109 and 6.109A for the 17-node network. The first cost and revenue requirements associated with the FO cable dominates in the lower speed FO systems used to meet the smaller traffic loads (1983 and 1985), but the cost of multiplex becomes dominant as higher speed FO systems and larger traffic loads are encountered.

6.1.2.4 Comparative Network Cost Results

In terms of first cost per circuit and revenue requirements per circuit, all networks are not equal, as shown in Exhibit 6.113 and 6.114. The 11-node network is the most costly and the 23-node network is the least costly as the traffic load increases. Because the number of circuits provided is related directly to the traffic load, even though each network configuration carries a different total traffic load, using first cost per circuit and revenue requirements per circuit normalizes the data in terms of traffic load and is useful as a basis for comparison.

6.2 IDENTIFICATION OF COST DRIVERS

Two basic network components are under analysis, and each has somewhat different characteristics. The internodal network model consists of long and relatively large circuit groups interconnecting the nodes. The LATA access network model envisions smaller circuit groups, ranging in average length from

short to relatively long, depending on the node, which interconnect the POP in each LATA with its "home" node.

6.2.1 Internodal Network Cost Drivers

In terms of both first cost and annual cost, the cost of installed fiber optic cable is the largest single item for the lower-speed digital FO systems used for the smaller traffic loads. As the traffic load increases, and as forecasted technological advances are realized, the use of greater line repeater spacing and higher-speed, higher circuit-capacity electronic equipment is effective in leading to a decrease in overall FO cable cost.

The annual cost of the FO cable is reduced proportionally more than the annual cost being charged to the electronic equipment, mainly because of the shorter depreciation lives of the electronic equipment.

As the circuit capacity of the FO cable systems increases, the major cost driver changes from the FO cable to the M13 multiplexers, which change the digital line rate from the DS-1 level (1.544 Mbps) to the DS-3 level (44.736 Mbps). Further increases in the line transmission rate take place in the FO transmission terminal equipment. As the capacity of the FO systems increases, the first cost of the FO cable, FO transmission equipment, and associated structures falls to a low in the vicinity of 20 percent of total first cost and 15 percent of total annual cost. The major cost driver for the larger traffic loads, the M13 multiplexers, are equipment items that could also be required on competitive transmission systems.

6.2.2 LATA Access Network Cost Drivers

The LATA access network uses lower speed FO systems throughout, with an increase in line repeater spacing being allowed as the traffic load increases (1990 onward). Because of the area served by each node in the various network configurations, no general comments can be made about cost drivers for the smaller traffic loads. In some instances, FO cable costs dominate; in others, multiplex (T1 and M13) costs dominate; and in some cases, they are about equal. The average circuit length affects the FO cable investment, while the number of voice circuits affects the multiplex investment.

As the traffic loads increase, however, the multiplex becomes the undisputed cost driver in the LATA access network, regardless of the node involved. The major cost driver for the larger traffic loads, the T1 and M13 multiplexers, are equipment items that could also be required on competitive transmission systems.

These conditions are illustrated clearly in the graphs of Exhibits 6.73A through 6.79A for the 11-node network and Exhibits 6.82A through 6.88A for the 17-node network. Similar results can be expected for the 15-node and 23-node networks.

6.2.3 Combined Network Cost Drivers

When the internodal network and the LATA access network models are combined, the cost driver situation does not change significantly. At lower traffic loads, the FO cable cost dominates. This changes as the traffic load increases, and the multiplex becomes the dominating cost element.

The tables and graphs included in Exhibits 6.92 and 6.92A through 6.98 and 6.98A for the 11-node network and Exhibits 6.103 and 6.103A through 6.109 and 6.109A for the 17-node network illustrate these results.

The major cost driver for the larger traffic loads, the T1 and M13 multiplexers, are equipment items that could also be required on competitive transmission systems.

6.3 COST SENSITIVE TECHNOLOGY ITEMS

Fiber optic cable is not likely to experience any dramatic price reduction in the next 15 years, and the costs of splicing and installation are likely to increase at a rate corresponding to the Consumer Price Index (CPI). Fiber optic terminal and line equipment is likely to come down in cost in terms of the circuit-carrying capacity of a single fiber. This cost item is likely to decline with the cost per circuit dropping by 50 percent every five years and the circuit capacity per fiber doubling every five years.

A considerably less optimistic set of cost assumptions was used for the FO terminal and line equipment in the financial models, but since the major cost driver becomes the M13 multiplexers as the FO system capacity increases, cost reductions in the M13 multiplexers will have a much greater effect than changes in the FO line and terminal equipment costs.

In reviewing these results, it should be realized that an underlying assumption made is that any of the model networks would be built in one project or effort to meet the traffic load predicted for a given year. This is a simplifying assumption that leaves no room for evaluating the effect of a continuing investment to build up the network in stages, with revenue being generated from a partially complete network.

6.3.1 Network Cost Sensitivity

Several sensitivity analyses are possible, in addition to the sensitivity range provided by variations in traffic load that has been built into this study. Three basic areas are analyzed briefly: network costs without multiplex, network costs using only 1980s' technology, and network costs under regulated operating conditions.

6.3.1.1 Network Costs without Multiplex

In each of the network component studies and in the combined network study, the cost of multiplex is significant and dominates as the traffic load increases. Since multiplex equipment is likely to be required in any system design, it is possible that the multiplex could represent a common cost among competitive designs. Thus, the combined network study results are shown for each network configuration with multiplex costs eliminated, with first cost per circuit and revenue requirements per circuit ranging from roughly 20 percent to 70 percent of the corresponding normal cost. As might be expected, the FO cable represents the major cost driver in this situation, although the cost per mile and the cost per circuit is fairly flat over the range of traffic loads, as shown in Exhibits 6.115 and 6.115A through 6.118 and 6.118A. The relative effect of no multiplex on the different network configurations is shown graphically in Exhibits 6.135 and 6.136. This leads to the conclusion that installation of high-capacity FO links is the most cost-effective solution, starting with the one-time installation of large-size FO cables, and adding electronic equipment as the demand increases.

Eliminating multiplex from the financial considerations reduces the revenue requirement per circuit minute from \$.004 to \$.008 per minute for the normal assumptions to \$.001 to \$.005 per minute.

6.3.1.2 Network Costs using 1980s' Technology

A number of technological assumptions have been made for both the internodal network and the LATA access models. In this section, these assumptions are discarded and it is assumed that the following applies throughout:

Internodal Network

- 405 Mbps line transmission rate (9 DS-3 or 6048 voice circuits)
- 40 km (25 mile) line repeater spacing
- 48 fiber or 96 fiber FO cable

LATA Access Network

- 405 Mbps (6048 voice ccts) line transmission rate
- 24 fiber FO cable
- 40 km (25 mile) line repeater spacing

Results of these studies indicate that the first cost and revenue requirements will be up to 38 percent higher, depending on the year and the network configuration. This is illustrated in Exhibits 6.119 and 6.119A through 6.122 and 6.122A and in Exhibits 6.127 through 6.134. The relative effect of 1980s' technology on the different network configurations is shown graphically in Exhibits 6.137 and 6.138.

In terms of revenue requirements per circuit per minute of use, the 1980s' technology assumption maintains the range from \$.005 to \$.008, only slightly higher than the normal assumptions.

6.3.1.3 Regulated Network Costs

In reviewing the results, another cost-affecting factor should be considered. This is the service life, debt ratio, and ROI assumptions made in the financial models, which are appropriate for the recently-founded specialized and unregulated communications common carriers. If a regulated common carrier is assumed, it is likely that the FO cable will have a 20-year service life, the associated electronic equipment will have a 12-year service life, the objective ROI will be 12.2 percent, the debt ratio will be 40 percent, and the average interest rate on debt capital will be approximately 10 percent. With these figures, the revenue requirements associated with the financial models will be revised downward by 20 to 30 percent, as shown in Exhibits 6.123 and 6.123A through 6.125 and 6.126A. The relative effect of regulation on the different network configurations is shown graphically in Exhibits 6.139 and 6.140.

In terms of revenue requirements per circuit per minute of use, the regulated rates assumption reduces the range from \$.004 to \$.008 for the normal assumptions to \$.003 to \$.006 per minute.

6.4 ANALYSIS OF TWO REPRESENTATIVE SYSTEMS

The fiber optic cable transmission system networks of two companies have been analyzed as a means of injecting a practical and realistic view of actual system experience with costs. Only first cost data are available, some of which have been used in the financial models described previously in this report.

The first company, Company A, is a relatively small operation having the following characteristics:

COMPANY A

Route-miles: 687 in service, total of 930 planned.

Location: 2-state area

Initial Construction: 405 Mbps system, 1 active, 1 standby.

Average FO Cable Cross-section: 10 fibers

Average Construction Conditions: Easy

Financial: 100 % equity capital, objective ROI = 15 %

Specific First Cost Data:

Fiber Optic Cable: \$.40 per fiber meter; \$ 6,437 per mile, 10 fibers

Cable Splicing: \$ 700 per splice; 10 fibers, 3 splices per day

Underground Conduit: \$.25 per duct-foot; 6-way conduit @ \$ 3 per ft

Controlled Environment Vault (CEV): \$ 35,000 installed

FO Line Repeater: \$ 48,000 (redundant) plus \$ 6,000 for battery

Drop/Insert Repeater: \$ 180,000 (redundant) •

FO Terminal: \$ 120,000 (redundant)

The second company, Company B, is a sizeable company with a nationwide fiber optic cable network. Major characteristics are as follows:

COMPANY B

Route-miles: 2500 in service, total of 5500 planned.

Location: Nationwide

Initial Construction: 405 Mbps & 565 Mbps systems, planning 810 Mbps systems; 2 active, 1 standby.

Average Cable Cross-section:

Main routes: 22 fiber and 44 fiber

Spur routes: 12 fiber and 32 fiber

Average Construction Conditions: Moderate to Difficult

Financial: 60% debt capital, objective ROI = 15 %

Specific First Cost Data:

Fiber Optic Cable: \$.45 per fiber meter
\$15,933 per mile for 22 fiber cable
\$ 31,865 per mile for 44 fiber cable
Cable Installation: \$ 2 to \$ 3 per foot average, up to
\$ 50 per ft
Repeater Housings: \$ 150,000 per repeater site, all
associated costs
FO Line Repeater: \$ 9,000 to \$ 12,000 depending on
OW/Alarm access
FO Terminal: \$ 2,000 per terminal per DS-3 port
\$ 18,000 for 405 Mbps, \$ 24,000 for 565 Mbps
M13 Multiplexer: \$ 8,000 to \$ 15,000

Neither company has any reliable information concerning annual operating and maintenance costs, ad valorem tax rates, etc. that are necessary for the assembly of an Annual Cost study.

6.5 ANALYSIS OF FINANCIAL MODEL STUDY RESULTS

Results of the economic analysis of each of the four prototype transmission network configurations are included in the tables and graphs of Exhibits 6.1 through 6.140. The various exhibits are assembled in related groupings for detailed review.

6.5.1 Inter-Nodal Network Study

The inter-nodal network segments for each prototype network have been studied separately.

6.5.1.1 11 Node Network

Exhibits 6.1 and 6.1A

General - Traffic routing matrix is built up using the assumption that inter-nodal circuit links follow the shortest paths between nodes using the routes shown on the maps in Section 5. Traffic data shown is based on 1990 estimates for AT&T inter-LATA voice traffic only. Adjustments are made in the financial model to account for private line and other common carrier (OCC) inter-LATA traffic, and to account for growth in traffic load, as described in Section 6.1.1.1. The traffic load varies among the links, as shown in Exhibit 6.1A.

Heaviest Route: New York-Philadelphia (1-2)

Lightest Route: Los Angeles-San Francisco (7-8)

Heavy/Light Ratio: 2.42

Exhibits 6.2 through 6.14B

General - Actual traffic, voice frequency (VF) circuit requirements, system mileage, circuit mileage, FO cable and transmission equipment first costs and annual costs, and average costs per mile and per circuit-mile are calculated for each link of the prototype network and shown in tabular form for each study assumption and study year. Associated graphs display the first costs and annual costs of each classification of equipment by link.

Overall Results - FO cable costs dominate on links with smaller traffic loads (fewer circuits) that cover the longer distances. Multiplex costs dominate on shorter links and on those carrying the heaviest traffic loads. Multiplex cost domination becomes more pronounced as

the system traffic load increases. The annual charge percentage is higher for multiplex than for FO cable, thus multiplex annual costs rise faster than FO cable annual costs as the system traffic load increases. The "High/Low Ratio" compares the highest cost link and the lowest cost link; a low ratio indicates a more evenly balanced investment among the links. The "Major Cost Element" column indicates the number of links in the 12-link, 11-node configuration in which either cable or multiplex costs predominate.

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>		
			<u>High/Low</u>	<u>FO Cable</u>	<u>M13 Mux</u>	
6.2, 6.2A (1983 Traffic) (405 Mbps, 48f FO)						
First Cost	Atl-Dal	NY-Phil	4.05	10	2	
Annual Cost	Atl-Dal	LA-SF	3.82	10	2	
6.3, 6.3A, 6.3B (1985 Traffic) (405 Mbps, 48f FO)						
First Cost	Atl-Dal	NY-Phil	4.02	10	2	
Annual Cost	Atl-Dal	LA-SF	3.54	10	2	
(565 Mbps, 48f FO)						
First Cost	Atl-Dal	LA-SF	3.84	10	2	
Annual Cost	Atl-Dal	LA-SF	3.74	10	2	
6.4, 6.4A, 6.4B (1985 Traffic) (405 Mbps, 96f FO)						
First Cost	Atl-Dal	LA-SF	3.95	10	2	
Annual Cost	Atl-Dal	NY-Phil	3.42	10	2	
(565 Mbps, 96f FO)						
First Cost	Atl-Dal	LA-SF	4.22	10	2	
Annual Cost	Atl-Dal	LA-SF	4.03	9	3	
6.5, 6.5A, 6.5B (1990 Traffic) (810 Mbps, 48f FO)						
First Cost	Atl-Dal	LA-SF	2.68	4	8	
Annual Cost	Atl-Dal	LA-SF	2.66	1	11	
(1.7 Gbps, 48f FO)						
First Cost	Atl-Dal	LA-SF	2.79	1	11	
Annual Cost	Atl-Dal	LA-SF	2.74	0	12	
6.6, 6.6A, 6.6B (1990 Traffic) (810 Mbps, 96f FO)						
First Cost	Atl-Dal	LA-SF	2.97	5	7	
Annual Cost	Atl-Dal	LA-SF	2.88	1	11	
(1.7 Gbps, 96f FO)						
First Cost	Atl-Dal	LA-SF	2.37	3	9	
Annual Cost	Atl-Dal	LA-SF	2.43	1	11	

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.7, 6.7A, 6.7B (1995 Traffic)					
(1.7 Gbps, 48f FO)					
First Cost	Atl-Dal	LA-SF	2.92	0	12
Annual Cost	Atl-Dal	LA-SF	2.79	0	12
(4.05 Gbps, 48f FO)					
First Cost	Atl-Dal	LA-SF	2.41	0	12
Annual Cost	Atl-Dal	LA-SF	2.44	0	12
6.8, 6.8A, 6.8B (1995 Traffic)					
(1.7 Gbps, 96f FO)					
First Cost	Atl-Dal	LA-SF	2.81	0	12
Annual Cost	Atl-Dal	LA-SF	2.72	0	12
(4.05 Gbps, 96f FO)					
First Cost	Atl-Dal	LA-SF	2.37	0	12
Annual Cost	Atl-Dal	LA-SF	2.41	0	12
6.9, 6.9A, 6.9B (1995 Traffic + 30%)					
(1.7 Gbps, 48f FO)					
First Cost	Atl-Dal	LA-SF	2.57	0	12
Annual Cost	Atl-Dal	LA-SF	2.55	0	12
(4.05 Gbps, 48f FO)					
First Cost	Atl-Dal	LA-SF	2.63	0	12
Annual Cost	Atl-Dal	LA-SF	2.59	0	12
6.10, 6.10A, 6.10B (1995 Traffic + 30%)					
(1.7 Gbps, 96f FO)					
First Cost	Atl-Dal	LA-SF	2.75	0	12
Annual Cost	Atl-Dal	LA-SF	2.67	0	12
(4.05 Gbps, 96f FO)					
First Cost	Atl-Dal	LA-SF	2.39	0	12
Annual Cost	Atl-Dal	LA-SF	2.43	0	12
6.11, 6.11A, 6.11B (1995 Traffic - 30%)					
(1.7 Gbps, 48f FO)					
First Cost	Atl-Dal	LA-SF	2.70	0	12
Annual Cost	Atl-Dal	LA-SF	2.64	0	12
(4.05 Gbps, 48f FO)					
First Cost	Atl-Dal	LA-SF	2.36	0	12
Annual Cost	Atl-Dal	LA-SF	2.40	0	12
6.12, 6.12A, 6.12B (1995 Traffic - 30%)					
(1.7 Gbps, 96f FO)					
First Cost	Atl-Dal	LA-SF	2.32	2	10
Annual Cost	Atl-Dal	LA-SF	2.37	0	12
(4.05 Gbps, 96f FO)					
First Cost	Atl-Dal	LA-SF	2.32	2	10
Annual Cost	Atl-Dal	LA-SF	2.37	0	12

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>		
			<u>High/Low</u>	<u>FO Cable</u>	<u>M13 Mux</u>	
6.13, 6.13A, 6.13B (2000 Traffic) (4.05 Gbps, 48f FO)						
First Cost	Atl-Dal	LA-SF	2.58	0	12	
Annual Cost	Atl-Dal	LA-SF	2.55	0	12	
(8.1 Gbps, 48f FO)						
First Cost	Atl-Dal	LA-SF	2.42	0	12	
Annual Cost	Atl-Dal	LA-SF	2.43	0	12	
6.14, 6.14A, 6.14B (2000 Traffic) (4.05 Gbps, 96f FO)						
First Cost	Atl-Dal	LA-SF	2.39	0	12	
Annual Cost	Atl-Dal	LA-SF	2.41	0	12	
(8.1 Gbps, 96f FO)						
First Cost	Atl-Dal	LA-SF	2.39	0	12	
Annual Cost	Atl-Dal	LA-SF	2.42	0	12	

6.5.1.2 15 Node Network

Exhibits 6.15 and 6.15A

General - Traffic routing matrix is built up using the assumption that inter-nodal circuit links follow the shortest paths between nodes using the routes shown on the maps in Section 5. Traffic data shown is based on 1990 estimates for AT&T inter-LATA voice traffic only. Adjustments are made in the financial model to account for private line and other common carrier (OCC) inter-LATA traffic, and to account for growth in traffic load, as described in Section 6.1.1.1. The traffic load varies among the links, as shown in Exhibit 6.15A.

Heaviest Route: New York-Philadelphia (1-2)

Lightest Route: Dallas-Miami (5-12)

Heavy/Light Ratio: 12.55

Exhibits 6.16 through 6.28

General - Actual traffic, VF circuit requirements, system mileage, circuit mileage, FO cable and transmission equipment first costs and annual costs, and average costs per mile and per circuit-mile are calculated for each link of the prototype network and shown in tabular form for each study assumption and study year.

Overall Results - FO cable costs dominate on links with smaller traffic loads (fewer circuits) that cover the longer distances. Multiplex costs dominate on shorter links and on those carrying the heaviest traffic loads. Multiplex cost domination becomes more pronounced as the system traffic load increases. The annual charge percentage is higher for multiplex than for FO cable, thus multiplex annual costs rise faster than FO cable annual costs as the system traffic load increases. The "High/Low Ratio" compares the highest cost link and the lowest cost link; a low ratio indicates a more evenly balanced investment among the links. The "Major Cost Element" column indicates the number of links in the 19-link, 15-node configuration in which either cable or multiplex costs predominate.

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.16 (1983 Traffic)					
(405 Mbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	6.45	17	2
Annual Cost	Atl-Dal	NY-Bos	6.43	17	2
6.17 (1985 Traffic)					
(405 Mbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	7.27	17	2
Annual Cost	Atl-Dal	NY-Bos	7.09	17	2
(565 Mbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	8.20	17	2
Annual Cost	Atl-Dal	NY-Bos	7.75	15	4
6.18 (1985 Traffic)					
(405 Mbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	8.20	17	2
Annual Cost	Atl-Dal	NY-Bos	7.69	17	2
(565 Mbps, 96f FO)					
First Cost	Den-Chi	NY-Bos	6.65	17	2
Annual Cost	Atl-Dal	NY-Bos	6.34	16	3
6.19 (1990 Traffic)					
(810 Mbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	5.35	9	10
Annual Cost	Atl-Dal	NY-Bos	5.00	6	13
(1.7 Gbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	4.65	6	13
Annual Cost	Atl-Dal	NY-Bos	4.49	4	15

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.20 (1990 Traffic)					
(810 Mbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	5.08	9	10
Annual Cost	Atl-Dal	NY-Bos	4.83	6	13
(1.7 Gbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	3.95	8	11
Annual Cost	Atl-Dal	NY-Bos	3.98	6	13
6.21 (1995 Traffic)					
(1.7 Gbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	4.31	4	15
Annual Cost	Atl-Dal	NY-Bos	4.18	3	16
(4.05 Gbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	3.81	4	15
Annual Cost	Atl-Dal	NY-Bos	3.82	3	16
6.22 (1995 Traffic)					
(1.7 Gbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	3.84	5	14
Annual Cost	Atl-Dal	NY-Bos	3.85	4	15
(4.05 Gbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	3.82	5	14
Annual Cost	Atl-Dal	NY-Bos	3.82	4	15
6.23 (1995 Traffic + 30%)					
(1.7 Gbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	4.60	4	15
Annual Cost	Atl-Dal	SF-Sea	4.52	3	16
(4.05 Gbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	3.82	4	15
Annual Cost	Atl-Dal	SF-Sea	3.90	3	16
6.24 (1995 Traffic + 30%)					
(1.7 Gbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	4.50	5	14
Annual Cost	Atl-Dal	NY-Bos	4.31	4	15
(4.05 Gbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	3.82	5	14
Annual Cost	Atl-Dal	NY-Bos	3.82	4	15
6.25 (1995 Traffic - 30%)					
(1.7 Gbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	4.44	5	14
Annual Cost	Atl-Dal	NY-Bos	4.27	4	15
(4.05 Gbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	3.80	5	14
Annual Cost	Atl-Dal	NY-Bos	3.81	4	15

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.26 (1995 Traffic - 30%) (1.7 Gbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	3.82	8	11
Annual Cost	Atl-Dal	NY-Bos	3.83	5	14
(4.05 Gbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	3.80	8	11
Annual Cost	Atl-Dal	NY-Bos	3.81	5	14
6.27 (2000 Traffic) (4.05 Gbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	4.10	3	16
Annual Cost	Atl-Dal	Dal-Mia	4.62	1	18
(8.1 Gbps, 48f FO)					
First Cost	Atl-Dal	NY-Bos	3.75	3	16
Annual Cost	Atl-Dal	Dal-Mia	4.40	1	18
6.28 (2000 Traffic) (4.05 Gbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	3.80	4	15
Annual Cost	Atl-Dal	NY-Bos	3.80	3	16
(8.1 Gbps, 96f FO)					
First Cost	Atl-Dal	NY-Bos	3.76	4	15
Annual Cost	Atl-Dal	NY-Bos	3.76	3	16

6.5.1.3 17 Node Network

Exhibits 6.29 and 6.29A

General - Traffic routing matrix is built up using the assumption that inter-nodal circuit links follow the shortest paths between nodes using the routes shown on the maps in Section 5. Traffic data shown is based on 1990 estimates for AT&T inter-LATA voice traffic only. Adjustments are made in the financial model to account for private line and other common carrier (OCC) inter-LATA traffic, and to account for growth in traffic load, as described in Section 6.1.1.1. The traffic load varies among the links, as shown in Exhibit 6.29A.

Heaviest Route: Chicago-St. Louis (10-11)

Lightest Route: Miami-Houston (12-16)

Heavy/Light Ratio: 11.83

Exhibits 6.30 through 6.41B

General - Actual traffic, VF circuit requirements, system mileage, circuit mileage, FO cable and transmission equipment first costs and annual costs, and average costs per mile and per circuit-mile are calculated for each link of the prototype network and shown in tabular form for each study assumption and study year. Associated graphs display the first costs and annual costs of each classification of equipment by link.

Overall Results - FO cable costs dominate on links with smaller traffic loads (fewer circuits) that cover the longer distances. Multiplex costs dominate on shorter links and on those carrying the heaviest traffic loads. Multiplex cost domination becomes more pronounced as the system traffic load increases. The annual charge percentage is higher for multiplex than for FO cable, thus multiplex annual costs rise faster than FO cable annual costs as the system traffic load increases. The "High/Low Ratio" compares the highest cost link and the lowest cost link; a low ratio indicates a more evenly balanced investment among the links. The "Major Cost Element" column indicates the number of links in the 22-link, 17-node configuration in which either cable or multiplex costs predominate.

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.30, 6.30A (1983 Traffic) (405 Mbps, 48f FO)					
First Cost	Den-Chi	NY-Bos	3.32	20	2
Annual Cost	Den-Chi	SF-Sea	3.04	20	2
6.31, 6.31A, 6.31B (1985 Traffic) (405 Mbps, 48f FO)					
First Cost	Den-Chi	NY-Bos	3.17	20	2
Annual Cost	Den-Chi	SF-Sea	3.08	20	2
(565 Mbps, 48f FO)					
First Cost	Wash-Atl	NY-Bos	2.76	20	2
Annual Cost	Wash-Atl	SF-Sea	2.77	18	4
6.32, 6.32A, 6.32B (1985 Traffic) (405 Mbps, 96f FO)					
First Cost	Den-Chi	LA-SF	3.47	20	2
Annual Cost	Den-Chi	LA-SF	3.21	20	2
(565 Mbps, 96f FO)					
First Cost	Atl-Dal	LA-SF	2.94	20	2
Annual Cost	Atl-Dal	LA-SF	2.79	20	2

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.33, 6.33A, 6.33B (1990 Traffic)					
(810 Mbps, 48f FO)					
First Cost	Chi-StL	SF-Sea	2.52	9	13
Annual Cost	Chi-StL	SF-Sea	3.05	5	17
(1.7 Gbps, 48f FO)					
First Cost	Chi-StL	SF-Sea	2.34	6	16
Annual Cost	Chi-StL	SF-Sea	2.89	4	18
6.34, 6.34A, 6.34B (1990 Traffic)					
(810 Mbps, 96f FO)					
First Cost	Sea-MStP	LA-SF	2.17	8	14
Annual Cost	Chi-StL	SF-Sea	2.40	4	18
(1.7 Gbps, 96f FO)					
First Cost	Sea-MStP	LA-SF	2.19	7	15
Annual Cost	Chi-StL	SF-Sea	3.98	4	18
6.35, 6.35A, 6.35B (1995 Traffic)					
(1.7 Gbps, 48f FO)					
First Cost	Chi-StL	SF-Sea	3.25	3	19
Annual Cost	Chi-StL	Mia-Hou	3.93	2	20
(4.05 Gbps, 48f FO)					
First Cost	Chi-StL	SF-Sea	2.94	4	18
Annual Cost	Chi-StL	Mia-Hou	3.61	2	20
6.36, 6.36A, 6.36B (1995 Traffic)					
(1.7 Gbps, 96f FO)					
First Cost	Chi-StL	SF-Sea	2.54	5	17
Annual Cost	Chi-StL	SF-Sea	3.13	3	19
(4.05 Gbps, 96f FO)					
First Cost	Chi-StL	SF-Sea	2.33	5	17
Annual Cost	Chi-StL	SF-Sea	2.93	3	19
6.37, 6.37A, 6.37B (1995 Traffic + 30%)					
(1.7 Gbps, 48f FO)					
First Cost	Chi-StL	SF-Sea	3.61	3	19
Annual Cost	Chi-StL	Mia-Hou	4.55	2	20
(4.05 Gbps, 48f FO)					
First Cost	Chi-StL	SF-Sea	3.44	2	20
Annual Cost	Chi-StL	Mia-Hou	4.38	2	20
6.38, 6.38A, 6.38B (1995 Traffic + 30%)					
(1.7 Gbps, 48f FO)					
First Cost	Chi-StL	SF-Sea	2.89	3	19
Annual Cost	Chi-StL	SF-Sea	3.51	2	20
(4.05 Gbps, 48f FO)					
First Cost	Chi-StL	SF-Sea	2.68	4	18
Annual Cost	Chi-StL	SF-Sea	3.31	2	20

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.39, 6.39A, 6.39B (1995 Traffic - 30%) (1.7 Gbps, 96f FO)					
First Cost	Chi-StL	SF-Sea	2.62	2	20
Annual Cost	Chi-StL	SF-Sea	3.22	1	21
(4.05 Gbps, 96f FO)					
First Cost	Chi-StL	SF-Sea	3.80	2	20
Annual Cost	Chi-StL	SF-Sea	3.05	1	21
6.40, 6.40A, 6.40B (1995 Traffic - 30%) (1.7 Gbps, 96f FO)					
First Cost	Chi-StL	Dal-Hou	1.91	7	15
Annual Cost	Chi-StL	SF-Sea	2.45	3	19
(4.05 Gbps, 48f FO)					
First Cost	Chi-StL	LA-SF	1.99	7	15
Annual Cost	Chi-StL	SF-Sea	2.43	3	19
6.41, 6.41A, 6.41B (2000 Traffic) (4.05 Gbps, 48f FO)					
First Cost	Chi-StL	Mia-Hou	4.00	2	20
Annual Cost	Chi-StL	Mia-Hou	5.07	1	21
(8.1 Gbps, 48f FO)					
First Cost	Chi-StL	Mia-Hou	3.80	2	20
Annual Cost	Chi-StL	Mia-Hou	4.82	1	21
6.42, 6.42A, 6.42B (2000 Traffic) (4.05 Gbps, 96f FO)					
First Cost	Chi-StL	SF-Sea	3.07	3	19
Annual Cost	Chi-StL	Mia-Hou	3.87	2	20
(8.1 Gbps, 96f FO)					
First Cost	Chi-StL	SF-Sea	3.02	3	19
Annual Cost	Chi-StL	Mia-Hou	3.78	2	20

6.5.1.4 23 Node Network

Exhibits 6.43 and 6.43A

General - Traffic routing matrix is built up using the assumption that inter-nodal circuit links follow the shortest paths between nodes using the routes shown on the maps in Section 5. Traffic data shown is based on 1990 estimates for AT&T inter-LATA voice traffic only. Adjustments are made in the financial model to account for private line and other common carrier (OCC) inter-LATA traffic, and to account for growth in traffic load, as described in Section 6.1.1.1. The traffic load varies among the links, as shown in Exhibit 6.43A.

Heaviest Route: Chicago-Detroit (10-18)

Lightest Route: Tampa-Houston (20-21)

Heavy/Light Ratio: 13.91

Exhibits 6.44 through 6.56

General - Actual traffic, VF circuit requirements, system mileage, circuit mileage, FO cable and transmission equipment first costs and annual costs, and average costs per mile and per circuit-mile are calculated for each link of the prototype network and shown in tabular form for each study assumption and study year.

Overall Results - FO cable costs dominate on links with smaller traffic loads (fewer circuits) that cover the longer distances. Multiplex costs dominate on shorter links and on those carrying the heaviest traffic loads. Multiplex cost domination becomes more pronounced as the system traffic load increases. The annual charge percentage is higher for multiplex than for FO cable, thus multiplex annual costs rise faster than FO cable annual costs as the system traffic load increases. The "High/Low Ratio" compares the highest cost link and the lowest cost link; a low ratio indicates a more evenly balanced investment among the links. The "Major Cost Element" column indicates the number of links in the 28-link, 23-node configuration in which either cable or multiplex costs predominate.

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.44 (1983 Traffic)					
(405 Mbps, 48f FO)					
First Cost	Den Chi	Mia-Tam	8.77	25	3
Annual Cost	Den-Chi	Mia-Tam	8.51	23	5
6.45 (1985 Traffic)					
(405 Mbps, 48f FO)					
First Cost	Den-Chi	Mia-Tam	10.14	24	4
Annual Cost	Den-Chi	Mia-Tam	9.57	22	6
(565 Mbps, 48f FO)					
First Cost	Den-Chi	Mia-Tam	8.50	24	4
Annual Cost	Den-Chi	Mia-Tam	8.18	18	10

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.46 (1985 Traffic)					
(405 Mbps, 96f FO)					
First Cost	Den-Chi	Mia-Tam	7.60	24	4
Annual Cost	Den-Chi	Mia-Tam	7.54	23	5
(565 Mbps, 96f FO)					
First Cost	Den-Chi	Mia-Tam	7.49	24	4
Annual Cost	Den-Chi	Mia-Tam	7.39	18	10
6.47 (1990 Traffic)					
(810 Mbps, 48f FO)					
First Cost	Den-Chi	Mia-Tam	5.51	9	19
Annual Cost	Chi-Det	Mia-Tam	5.62	4	24
(1.7 Gbps, 48f FO)					
First Cost	Chi-Det	Mia-Tam	4.86	6	22
Annual Cost	Chi-Det	Mia-Tam	5.34	4	24
6.48 (1990 Traffic)					
(810 Mbps, 96f FO)					
First Cost	Chi-Det	Mia-Tam	4.46	10	18
Annual Cost	Chi-Det	Mia-Tam	4.99	6	22
(1.7 Gbps, 96f FO)					
First Cost	Den-Chi	Mia-Tam •	4.43	10	18
Annual Cost	Chi-Det	Mia-Tam	4.60	6	22
6.49 (1995 Traffic)					
(1.7 Gbps, 48f FO)					
First Cost	Chi-Det	Mia-Tam	5.66	3	25
Annual Cost	Chi-Det	Mia-Tam	6.00	2	26
(4.05 Gbps, 48f FO)					
First Cost	Chi-Det	Mia-Tam	5.22	3	25
Annual Cost	Chi-Det	Mia-Tam	5.67	2	26
6.50 (1995 Traffic)					
(1.7 Gbps, 96f FO)					
First Cost	Chi-Det	Mia-Tam	5.05	5	23
Annual Cost	Chi-Det	Mia-Tam	5.51	3	25
(4.05 Gbps, 96f FO)					
First Cost	Chi-Det	Mia-Tam	4.69	5	23
Annual Cost	Chi-Det	Mia-Tam	5.23	3	25
6.51 (1995 Traffic + 30%)					
(1.7 Gbps, 48f FO)					
First Cost	Chi-Det	Mia-Tam	5.89	3	25
Annual Cost	Chi-Det	Mia-Tam	6.18	2	26
(4.05 Gbps, 48f FO)					
First Cost	Chi-Det	Mia-Tam	5.68	3	25
Annual Cost	Chi-Det	Mia-Tam	6.02	2	26

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Links)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.52 (1995 Traffic + 30%)					
(1.7 Gbps, 96f FO)					
First Cost	Chi-Det	Mia-Tam	5.35	4	24
Annual Cost	Chi-Det	Mia-Tam	5.76	3	25
(4.05 Gbps, 96f FO)					
First Cost	Chi-Det	Mia-Tam	5.04	4	24
Annual Cost	Chi-Det	Mia-Tam	5.52	3	25
6.53 (1995 Traffic - 30%)					
(1.7 Gbps, 48f FO)					
First Cost	Chi-Det	Mia-Tam	5.04	5	23
Annual Cost	Chi-Det	Mia-Tam	5.49	3	25
(4.05 gbps, 48f FO)					
First Cost	Chi-Det	Mia-Tam	4.69	5	23
Annual Cost	Chi-Det	Mia-Tam	5.18	3	25
6.54 (1995 Traffic - 30%)					
(1.7 Gbps, 96f FO)					
First Cost	Den-Chi	Mia-Tam	4.22	9	19
Annual Cost	Chi-Det	Mia-Tam	4.79	5	23
(4.05 Gbps, 96f FO)					
First Cost	Den-Chi	Mia-Tam	4.16	9	19
Annual Cost	Chi-Det	Mia-Tam	4.70	5	23
6.55 (2000 Traffic)					
(4.05 Gbps, 48f FO)					
First Cost	Chi-Det	Mia-Tam	5.92	2	26
Annual Cost	Chi-Det	Tam-Hou	6.30	1	27
(8.1 Gbps, 48f FO)					
First Cost	Chi-Det	Mia-Tam	5.69	2	26
Annual Cost	Chi-Det	Mia-Tam	6.01	1	27
6.56 (2000 Traffic)					
(4.05 Gbps, 96f FO)					
First Cost	Chi-Det	Mia-Tam	5.35	3	25
Annual Cost	Chi-Det	Mia-Tam	5.78	2	26
(8.1 Gbps, 96f FO)					
First Cost	Chi-Det	Mia-Tam	5.27	3	25
Annual Cost	Chi-Det	Mia-Tam	5.69	2	26

6.5.1.5 Inter-Nodal Network Cost Summaries

Total first cost and annual cost results for each study year and equipment configuration are assembled in tabular and graphical form.

6.5.1.5.1 11 Node Network Cost Summary

Exhibits 6.57, 6.58, 6.59, 6.60A, 6.60B, 6.60C

General - Tables and graphs show the total costs by major equipment classifications for each study year and configuration. The graphs show the trend for FO cable costs to decrease while multiplex costs increase as the traffic load increases. Increasing efficiency in the use of the digital FO transmission systems as the traffic load increases is shown by the declining total cost per circuit. The graph convention shows the 48 fiber FO cable models directly above the year designator, and the 96 fiber FO cable models are shown above the blank marker to the right of the year designator.

Exhibit 6.57 • Cost Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>
First Cost			
High	445	.50	287.37
Low	198	.17	96.70
Annual Cost			
High	262	.24	138.78
Low	89	.10	58.17

Exhibits 6.58, 6.59 - First Cost/Annual Cost Distributions

<u>Equipment</u>	<u>First Cost</u>		<u>Annual Cost</u>	
	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
FO Cable	11.1%	61.5%	7.4%	51.2%
Electronics	7.0	21.4	7.4	27.4
Structures	.4	3.1	.2	2.5
M13 Multiplex	15.5	80.8	20.2	84.2

Exhibits 6.60A, 6.60B, 6.60C - Total Cost Breakdown

The graphs show that total multiplex cost dominates from 1990 onward, as the traffic load increases and higher line-rate digital transmission systems are introduced. Similarly, the total cost per circuit declines, sharply between 1983 and 1990, and slowly after that time.

6.5.1.5.2 15 Node Network Cost Summary

Exhibits 6.61, 6.62, 6.63, 6.64A, 6.64B, 6.64C

General - Tables and graphs show the total costs by major equipment classifications for each study year and configuration. The graphs show the trend for FO cable costs to decrease while multiplex costs increase as the traffic load increases. Increasing efficiency in the use of the digital FO transmission systems as the traffic load increases is shown by the declining total cost per circuit. The graph convention shows the 48 fiber FO cable models directly above the year designator, and the 96 fiber FO cable models are shown above the blank marker to the right of the year designator.

Exhibit 6.61 - Cost Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>
First Cost			
High	297	.58	331.66
Low	137	.18	104.46
Annual Cost			
High	169	.27	156.63
Low	65	.11	61.36

Exhibits 6.62, 6.63 - First Cost/Annual Cost Distributions

<u>Equipment</u>	<u>First Cost</u>		<u>Annual Cost</u>	
	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
FO Cable	17.2%	65.4%	11.7%	55.9%
Electronics	5.9	19.1	7.0	25.0
Structures	.5	4.6	.4	3.9
M13 Multiplex	13.5	74.8	17.9	79.9

Exhibits 6.64A, 6.64B, 6.64C - Total Cost Breakdown

The graphs show that total multiplex cost dominates from 1990 onward, as the traffic load increases and higher line-rate digital transmission systems are introduced. Similarly, the total cost per circuit declines, sharply between 1983 and 1990, and slowly after that time.

6.5.1.5.3 17 Node Network Cost Summary

Exhibits 6.65, 6.66, 6.67, 6.68A, 6.68B, 6.68C

General - Tables and graphs show the total costs by major equipment classifications for each study year and configuration. The graphs show the trend for FO cable costs to decrease while multiplex costs increase as the traffic load increases. Increasing efficiency in the use of the digital FO transmission systems as the traffic load increases is shown by the declining total cost per circuit. The graph convention shows the 48 fiber FO cable models directly above the year designator, and the 96 fiber FO cable models are shown above the blank marker to the right of the year designator.

Exhibit 6.65 - Cost Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>
First Cost			
High	314	.58	302.53
Low	142	.20	102.90
Annual Cost			
High	180	.28	143.84
Low	68	.12	60.54

Exhibits 6.66, 6.67 - First Cost/Annual Cost Distributions

<u>Equipment</u>	<u>First Cost</u>		<u>Annual Cost</u>	
	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
FO Cable	16.1%	63.9%	11.0%	54.2%
Electronics	5.8	19.1	6.8	24.8
Structures	.5	4.7	.4	3.9
M13 Multiplex	14.8	76.0	19.5	81.0

Exhibits 6.68A, 6.68B, 6.68C - Total Cost Breakdown

The graphs show that total multiplex cost dominates from 1990 onward, as the traffic load increases and higher line-rate digital transmission systems are introduced. Similarly, the total cost per circuit declines, sharply between 1983 and 1990, and slowly after that time.

6.5.1.5.4 23 Node Network Cost Summary

Exhibits 6.69, 6.70, 6.71, 6.72A, 6.72B, 6.72C

General - Tables and graphs show the total costs by major equipment classifications for each study year and configuration. The graphs show the trend for FO cable costs to decrease while multiplex costs increase as the traffic load increases. Increasing efficiency in the use of the digital FO transmission systems as the traffic load increases is shown by the declining total cost per circuit. The graph convention shows the 48 fiber FO cable models directly above the year designator, and the 96 fiber FO cable models are shown above the blank marker to the right of the year designator.

Exhibit 6.69 - Cost Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>
First Cost			
High	387	.61	245.75
Low	151	.24	97.76
Annual Cost			
High	226	.29	118.67
Low	73	.14	58.40

Exhibits 6.70, 6.71 - First Cost/Annual Cost Distributions

<u>Equipment</u>	<u>First Cost</u>		<u>Annual Cost</u>	
	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
FO Cable	12.9%	60.8%	8.7%	50.7%
Electronics	5.6	18.8	6.3	24.1
Structures	.4	4.5	.3	3.7
M13 Multiplex	18.1	79.9	23.6	83.9

Exhibits 6.72A, 6.72B, 6.72C - Total Cost Breakdown

The graphs show that total multiplex cost dominates from 1990 onward, as the traffic load increases and higher line-rate digital transmission systems are introduced. Similarly, the total cost per circuit declines, sharply between 1983 and 1990, and slowly after that time.

6.5.2 LATA Access Network Study

The LATA access network segments for each prototype network have been studied separately.

6.5.2.1 11 Node Network

Exhibits 6.73 through 6.80A

Overall Results - FO cable costs dominate where average distances between LATA POPs and the node are relatively long and the traffic load is relatively low. Multiplex costs dominate in nodes having shorter average length POP-to-node links and in those carrying the heaviest traffic loads. Multiplex cost domination becomes more pronounced as the system traffic load increases. The annual charge percentage is higher for multiplex than for FO cable, thus multiplex annual costs rise faster than FO cable annual costs as the system traffic load increases. The "High/Low Ratio" compares the highest cost link and the lowest cost link; a low ratio indicates a more evenly balanced investment among the links. The "Major Cost Element" columns indicate the number of cities in which either cable or multiplex costs predominate.

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Cities)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.73 (1983 Traffic)					
First Cost	Chicago	Phoenix	15.41	6	5
Annual Cost	Chicago	Phoenix	14.22	5	6
6.74 (1985 Traffic)					
First Cost	Chicago	Phoenix	14.84	5	6
Annual Cost	Chicago	Phoenix	13.70	4	7
6.75 (1990 Traffic)					
First Cost	Chicago	Phoenix	13.51	2	9
Annual Cost	Chicago	Phoenix	12.62	1	10

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u>	<u>Major Cost Element</u> <u>(Number of Cities)</u>		
			<u>High/Low</u>	<u>FO Cable</u>	<u>M13 Mux</u>	
6.76 (1995 Traffic)						
First Cost	Chicago	Phoenix	12.64	0	11	
Annual Cost	Chicago	Phoenix	11.94	0	11	
6.77 (1995 Traffic + 30%)						
First Cost	Chicago	Phoenix	12.32	0	11	
Annual Cost	Chicago	Phoenix	11.71	0	11	
6.78 (1995 Traffic - 30%)						
First Cost	Chicago	Phoenix	13.09	1	10	
Annual Cost	Chicago	Phoenix	12.29	0	11	
6.79 (2000 Traffic)						
First Cost	Chicago	Phoenix	11.53	0	11	
Annual Cost	Chicago	Phoenix	11.17	0	11	

Exhibit 6.80, 6.80A

Chicago is the highest cost LATA access network, as a result of serving a large area (long average link length) which generates a large traffic load. Phoenix is the lowest cost LATA access network, and is characterized by a smaller service area generating a relatively low traffic load. Total costs (first cost and/or annual costs) of the 11 node LATA access network increase as the traffic load increases; the total cost per circuit declines as the traffic load increases.

6.5.2.2 15 Node Network

Exhibits 6.81, 6.81A

Chicago is the highest cost LATA access network, as a result of serving a large area (long average link length) which generates a large traffic load. Phoenix is the lowest cost LATA access network, and is characterized by a smaller service area generating a relatively low traffic load. Total costs (first cost and/or annual costs) of the 15-node LATA access network increase as the traffic load increases; the total cost per circuit declines as the traffic load increases. A detailed analysis of the 15 Node LATA access network equipment costs is not included. Results similar to those shown for the 11 Node and 17 Node LATA access networks concerning the dominance of multiplex equipment cost were realized in the study.

6.5.2.3 17 Node Network

Exhibits 6.82 through 6.89A

Overall Results - FO cable costs dominate where average distances between LATA POPs and the node are relatively long and the traffic load is relatively low. Multiplex costs dominate in nodes having shorter average length POP-to-node links and in those carrying the heaviest traffic loads. Multiplex cost domination becomes more pronounced as the system traffic load increases. The annual charge percentage is higher for multiplex than for FO cable, thus multiplex annual costs rise faster than FO cable annual costs as the system traffic load increases. The "High/Low Ratio" compares the highest cost link and the lowest cost link; a low ratio indicates a more evenly balanced investment among the links. The "Major Cost Element" columns indicate the number of cities in which either cable or multiplex costs predominate.

<u>Exhibit</u>	<u>High</u>	<u>Low</u>	<u>Ratio</u> <u>High/Low</u>	<u>Major Cost Element</u> <u>(Number of Cities)</u>	
				<u>FO Cable</u>	<u>M13 Mux</u>
6.82 (1983 Traffic)					
First Cost	Atlanta	Phila	4.20	6	11
Annual Cost	Atlanta	Seattle	3.73	3	14
6.83 (1985 Traffic)					
First Cost	Atlanta	Phila	3.90	3	14
Annual Cost	Atlanta	Seattle	3.70	2	15
6.84 (1990 Traffic)					
First Cost	Atlanta	Seattle	3.67	1	16
Annual Cost	Atlanta	Seattle	3.58	0	17
6.85 (1995 Traffic)					
First Cost	Atlanta	Seattle	3.55	0	17
Annual Cost	Atlanta	El Paso	3.60	0	17
6.86 (1995 Traffic + 30%)					
First Cost	Atlanta	El Paso	3.59	0	17
Annual Cost	Atlanta	El Paso	3.67	0	17
6.87 (1995 Traffic - 30%)					
First Cost	Atlanta	Seattle	3.63	0	17
Annual Cost	Atlanta	El Paso	3.61	0	17
6.88 (2000 Traffic)					
First Cost	Atlanta	El Paso	3.60	0	17
Annual Cost	Atlanta	El Paso	3.67	0	17

Exhibit 6.89, 6.89A

Atlanta is the highest cost LATA access network, as a result of serving a large area (long average link length) which generates a large traffic load. The lowest cost LATA access network varies. With a low overall traffic load, Philadelphia shows the lowest first cost because of short average distance between the POPs and the serving node. At the same time, Seattle shows a lower annual cost because of a preponderance of FO cable cost over multiplex cost, with FO cable having a lower annual cost as a percentage of first cost than multiplex. As the overall traffic load increases, the increasing cost of multiplex changes the lowest cost LATA access network to Seattle and finally to El Paso, both of which are characterized by smaller service areas generating relatively low traffic loads. Total costs (first cost and/or annual costs) of the 17 Node LATA access network increase as the traffic load increases; the total cost per circuit declines as the traffic load increases.

6.5.2.4 23 Node Network

Exhibits 6.90, 6.90A

Atlanta is the highest cost LATA access network, as a result of serving a large area (long average link length) which generates a large traffic load. Pittsburgh is the lowest cost LATA access network, and is characterized by a smaller service area generating a relatively low traffic load. Total costs (first cost and/or annual costs) of the 23-node LATA access network increase as the traffic load increases; the total cost per circuit declines as the traffic load increases. A detailed analysis of the 23-node LATA access network equipment costs is not included. Results similar to those shown for the 11-node and 17-node LATA access networks concerning the dominance of multiplex equipment cost were realized in the study.

6.5.3 Combined Inter-Nodal and LATA Access Network Study

Complete results of the Inter-Nodal and LATA access network segments for each prototype network have been obtained by combining the results of the individual network segment studies.

6.5.3.1 11 Node Network

Exhibits 6.91, 6.91A, 6.91B

Exhibit 6.91 - Combined Cost Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>
Total First Cost			
High	204	.026	494.96
Low	75	.012	230.76
Total Annual Cost			
High	119	.013	243.79
Low	37	.007	134.89

6.91A, 6.91B - The graphs show that the first cost per circuit and the revenue requirements per circuit decline as the overall traffic load increases. The decline is abrupt between 1985 and 1990, and is relatively small after that time. The ratio of LATA access network to inter-nodal network costs and revenue requirements per circuit ranges from approximately 2.6 to 1 at low traffic loads to 4.3 to 1 at high traffic loads.

Exhibits 6.92 through 6.98A

These exhibits show the number of configurations (based on speed and fiber count) in which either cable or multiplex are the predominant cost. Only one configuration is shown in Exhibit 6.92 because only 405 Mbps transmission and 48-fiber cable were used.

<u>Exhibit</u>	<u>Major Cost Element</u>	
	<u>FO Cable</u>	<u>M13 Mux</u>
6.92 (1983 Traffic)		
First Cost	1	0
Revenue Requirements	1	0
6.93 (1985 Traffic)		
First Cost	4	0
Revenue Requirements	3	1
6.94 (1990 Traffic)		
First Cost	0	4
Revenue Requirements	0	4

<u>Exhibit</u>	<u>Major Cost Element</u>	
	<u>FO Cable</u>	<u>M13 Mux</u>
6.95 (1995 Traffic)		
First Cost	0	4
Revenue Requirements	0	4
6.96 (1995 Traffic + 30%)		
First Cost	0	4
Revenue Requirements	0	4
6.97 (1995 Traffic - 30%)		
First Cost	0	4
Revenue Requirements	0	4
6.98 (2000 Traffic)		
First Cost	0	4
Revenue Requirements	0	4

Exhibits 6.99, 6.99A - Revenue Requirements Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	127	.014	263.59	.008
Low	40	.007	144.12	.004

The total cost and the revenue requirements increase with the overall traffic load. The revenue requirements per circuit decreases abruptly between 1985 and 1990, while the decline is relatively small thereafter. The revenue requirement per circuit ranges from \$.004 to \$.008 per minute.

6.5.3.2 15 Node Network

Exhibits 6.100, 6.100A, 6.100B

Exhibit 6.100 - Combined Cost Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>
Total First Cost			
High	219	.030	469.77
Low	77	.014	223.52
Total Annual Cost			
High	127	.015	232.42
Low	38	.008	131.09

6.100A, 6.100B - The graphs show that the first cost per circuit and the revenue requirements per circuit decline as the overall traffic load increases. The decline is abrupt between 1985 and 1990, and is relatively small after that time. The ratio of LATA access network to inter-nodal network costs and revenue requirements per circuit ranges from approximately 2.1 to 1 at low traffic loads to 3.9 to 1 at high traffic loads.

Exhibits 6.101, 6.101A - Revenue Requirements Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	136	.016	251.22	.008
Low	41	.009	140.03	.004

The total cost and the revenue requirements increase with the overall traffic load. The revenue requirements per circuit decreases abruptly between 1985 and 1990, while the decline is relatively small thereafter. The revenue requirement per circuit ranges from \$.004 to \$.008 per minute.

6.5.3.3 17 Node Network

Exhibits 6.102, 6.102A, 6.102B

Exhibit 6.102 - Combined Cost Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>
Total First Cost			
High	248	.033	424.55
Low	84	.016	212.36
Total Annual Cost			
High	145	.016	212.37
Low	42	.010	125.42

Exhibits 6.102A, 6.102B - The graphs show that the first cost per circuit and the revenue requirements per circuit decline as the overall traffic load increases. The decline is abrupt between 1985 and 1990, and is relatively small after that time. The ratio of LATA access network to inter-nodal network costs and revenue requirements per circuit ranges from approximately 2 to 1 at low traffic loads to 3.5 to 1 at high traffic loads.

Exhibits 6.103 through 6.109A

These exhibits show the number of configurations (based on speed and fiber count) in which either cable or multiplex are the predominant cost. Only one configuration is shown in Exhibit 6.103 because only 405 Mbps transmission and 48-fiber cable were used.

<u>Exhibit</u>	<u>Major Cost Element</u>	
	<u>FO Cable</u>	<u>M13 Mux</u>
6.103 (1983 Traffic)		
First Cost	1	0
Revenue Requirements	1	0
6.104 (1985 Traffic)		
First Cost	4	0
Revenue Requirements	4	0
6.105 (1990 Traffic)		
First Cost	0	4
Revenue Requirements	0	4
6.106 (1995 Traffic)		
First Cost	0	4
Revenue Requirements	0	4
6.107 (1995 Traffic + 30%)		
First Cost	0	4
Revenue Requirements	0	4
6.108 (1995 Traffic - 30%)		
First Cost	0	4
Revenue Requirements	0	4
6.109 (2000 Traffic)		
First Cost	0	4
Revenue Requirements	0	4

Exhibits 6.110, 6.110A - Revenue Requirements Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	155	.018	229.35	.007
Low	45	.010	133.91	.004

The total cost and the revenue requirements increase with the overall traffic load. The revenue requirements per circuit decreases abruptly between 1985 and 1990, while the decline is relatively small thereafter. The revenue requirement per circuit ranges from \$.004 to \$.007 per minute.

6.5.3.4 23 Node Network

Exhibits 6.111, 6.111A, 6.111B

6.111 - Combined Cost Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>
Total First Cost			
High	277	.039	357.82
Low	88	.020	189.59
Total Annual Cost			
High	164	.020	180.91
Low	45	.012	112.81

6.111A, 6.111B - The graphs show that the first cost per circuit and the revenue requirements per circuit decline as the overall traffic load increases. The decline is abrupt between 1985 and 1990, and is relatively small after that time. The ratio of LATA access network to inter-nodal network costs and revenue requirements per circuit ranges from approximately 2.4 to 1 at low traffic loads to 3.6 to 1 at high traffic loads.

Exhibits 6.112, 6.112A - Revenue Requirements Summary

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	175	.021	195.22	.007
Low	48	.013	120.40	.004

The total cost and the revenue requirements increase with the overall traffic load. The revenue requirements per circuit decreases abruptly between 1985 and 1990, while the decline is relatively small thereafter. The revenue requirement per circuit ranges from \$.004 to \$.007 per minute.

6.5.4 Network Comparisons

Each of the prototype networks is compared with the others on the basis of first cost and revenue requirements per circuit. This provides a means of normalizing the costs for comparison purposes, since each prototype network has a different traffic capacity. Exhibits 6.113 and 6.114 show the relationship graphically, with the result that the 23-node network appears to be the most cost-effective design and the 11-node network is the least cost-effective design.

When the node networks and the LATA networks are compared separately, without multiplex costs being included, as shown in Exhibits 6.135A, 6.135B, 6.136A, and 6.136B, the 11-node network becomes the lowest cost node network as the traffic load increases and the 17-node network becomes the lowest cost LATA network as the traffic load increases. This result suggests that there is room for system design optimization.

6.5.5 Sensitivity Considerations

A number of assumptions have been made in preparing the financial models for the various prototype networks, as described in Section 6.1. In addition to the traffic load forecast and the assumptions concerning initial fill, financial estimates have been made involving return on investment, debt ratio, and equipment depreciation lives. Also, a number of technological advances have been forecasted and used in appropriate years. Further, the results of the financial model calculations using the previously mentioned assumptions have shown that multiplex costs tend to swamp all other costs as the overall traffic load increases.

Further analysis of the financial models has been performed as a means of determining the changes that could occur if some of the assumptions are incorrect, or if some of the comparisons are misleading. Financial model variations studied include elimination of multiplex costs, restricting system design to 1980's technology, and using the financial structure of a regulated communications common carrier.

6.5.5.1 No Multiplex

Exhibits 6.115, 6.115A - 11 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	27	.008	163.67	.005
Low	18	.001	24.83	.001

The total cost and the revenue requirements vary unevenly with the overall traffic load, starting high in 1983, peaking in 1985, falling off for the 1990 and 1995 traffic loads, and increasing slightly for the 1995 + 30% and 2000 traffic loads. The variation in first cost and revenue requirements is relatively small, with a RR high/low ratio of 1.49. The revenue requirements per circuit decreases abruptly between 1985 and 1990, while the decline is relatively small thereafter. The revenue requirement per circuit ranges from \$.001 to \$.005 per minute.

Exhibits 6.116, 6.116A - 15 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	29	.010	153.08	.005
Low	18	.001	23.03	.001

The total cost and the revenue requirements vary unevenly with the overall traffic load, starting high in 1983, peaking in 1985, falling off for the 1990 and 1995 traffic loads, and increasing slightly for the 1995 + 30% and 2000 traffic loads. The variation in first cost and revenue requirements is relatively small, with a RR high/low ratio of 1.57. The revenue requirements per circuit decreases abruptly between 1985 and 1990, while the decline is relatively small thereafter. The revenue requirement per circuit ranges from \$.001 to \$.005 per minute.

Exhibits 6.117, 6.117A - 17 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	30	.010	134.25	.004
Low	19	.002	19.94	.001

The total cost and the revenue requirements vary unevenly with the overall traffic load, starting high in 1983, peaking in 1985, falling off for the 1990 and 1995 traffic loads, and increasing slightly for the 1995 + 30% and 2000 traffic loads. The variation in first cost and revenue requirements is relatively small, with a RR high/low ratio of 1.60. The revenue requirements per circuit decreases abruptly between 1985 and 1990, while the decline is relatively small

thereafter. The revenue requirement per circuit ranges from \$.001 to \$.004 per minute.

Exhibits 6.118, 6.118A - 23 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	32	.012	112.01	.004
Low	21	.002	18.68	.001

The total cost and the revenue requirements vary unevenly with the overall traffic load, starting high in 1983, peaking in 1985, falling off for the 1990 and 1995 traffic loads, and increasing slightly for the 1995 + 30% and 2000 traffic loads. The variation in first cost and revenue requirements is relatively small, with a RR high/low ratio of 1.54. The revenue requirements per circuit decreases abruptly between 1985 and 1990, while the decline is relatively small thereafter. The revenue requirement per circuit ranges from \$.001 to \$.004 per minute.

6.5.5.2 1980s' Technology

Exhibits 6.119, 6.119A - 11 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	162	.014	263.59	.008
Low	40	.010	184.36	.005

The total cost and the revenue requirements increase directly with the overall traffic load. The RR high/low ratio is 4.06. The revenue requirements per circuit decreases between 1985 and 1990, with the subsequent decline being relatively small. The revenue requirement per circuit ranges from \$.005 to \$.008 per minute.

Exhibits 6.120, 6.120A - 15 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	171	.016	251.22	.008
Low	41	.012	178.26	.005

The total cost and the revenue requirements increase directly with the overall traffic load. The RR high/low ratio is 4.12. The revenue requirements per circuit decreases between 1985 and 1990, with the subsequent decline being relatively small. The revenue requirement per circuit ranges from \$.005 to \$.008 per minute.

Exhibits 6.121, 6.121A - 17 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	192	.018	229.35	.007
Low	45	.013	168.05	.005

The total cost and the revenue requirements increase directly with the overall traffic load. The RR high/low ratio is 4.25. The revenue requirements per circuit decreases between 1985 and 1990, with the subsequent decline being relatively small. The revenue requirement per circuit ranges from \$.005 to \$.007 per minute.

Exhibits 6.122, 6.122A - 23 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	210	.021	195.22	.007
Low	48	.016	146.96	.005

The total cost and the revenue requirements increase directly with the overall traffic load. The RR high/low ratio is 4.35. The revenue requirements per circuit decreases between 1985 and 1990, with the subsequent decline being relatively small. The revenue requirement per circuit ranges from \$.005 to \$.007 per minute.

6.5.5.3 Regulated Rate Structure

Exhibits 6.123, 6.123A - 11 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	93	.011	206.32	.006
Low	31	.005	104.65	.003

The total cost and the revenue requirements increase directly with the overall traffic load. The RR high/low ratio is 2.97. The revenue requirements per circuit decreases between 1985 and 1990, with the subsequent decline being relatively small. The revenue requirement per circuit ranges from \$.003 to \$.006 per minute.

Exhibits 6.124, 6.124A - 15 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	100	.013	199.51	.006
Low	33	.007	102.57	.003

The total cost and the revenue requirements increase directly with the overall traffic load. The RR high/low ratio is 3.04. The revenue requirements per circuit decreases between 1985 and 1990, with the subsequent decline being relatively small. The revenue requirement per circuit ranges from \$.003 to \$.006 per minute.

Exhibits 6.125, 6.125A - 17 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	115	.014	182.97	.006
Low	36	.008	98.70	.003

The total cost and the revenue requirements increase directly with the overall traffic load. The RR high/low ratio is 3.20. The revenue requirements per circuit decreases between 1985 and 1990, with the subsequent decline being relatively small. The revenue requirement per circuit ranges from \$.003 to \$.006 per minute.

Exhibits 6.126, 6.126A - 23 Node Network Revenue Requirements

	<u>\$000/mi</u>	<u>\$/cct-mi</u>	<u>\$/cct</u>	<u>\$/minute</u>
High	132	.017	156.81	.006
Low	39	.010	90.81	.003

The total cost and the revenue requirements increase directly with the overall traffic load. The RR high/low ratio is 3.42. The revenue requirements per circuit decreases between 1985 and 1990, with the subsequent decline being relatively small. The revenue requirement per circuit ranges from \$.003 to \$.006 per minute.

6.5.5.4 Network Assumption Comparisons

The relative effect of the various assumptions used in evaluating the financial models of the prototype networks are shown graphically in comparison with the "normal" results obtained using the assumptions given in Section 6.1. Also, the different network configurations are compared graphically with one another under the conditions of the three sensitivity scenarios.

.Exhibits 6.127 through 6.134

In terms of first cost per circuit, 1980's Technology is the costliest, Normal and Regulated are the same and rank second in cost, and No Multiplex is the least costly. For revenue requirements per circuit, 1980's Technology is highest, Normal is second, Regulated is third, and No Multiplex is the least costly. This result applies to each of the four network configurations.

Exhibits 6.135, 6.135A, 6.135B, 6.136, 6.136A, 6.136B

For the sensitivity scenario that eliminates multiplex costs, it can be seen from Exhibits 6.135 and 6.136 that the 11-node Combined Network is most costly, the 15-node Combined Network is second, the 17-node Combined Network is third, and the 23-node Combined Network is least costly both with regard to first cost per circuit and revenue requirements per circuit. Because the strong to dominating effect of multiplex costs has been removed in this scenario, the node networks are compared separately in Exhibits 6.135A and 6.136A and the LATA networks are compared separately in Exhibits 6.135B and 6.136B.

Cost Rank (high to low)

11 Node 15 Node 17 Node 23 Node

Node Networks

6.135A (24f/48f FO Ca)

First Cost/Revenue Requirements per Circuit

1983	3	1	2	4
1985	3	1	2	4
	3	1	2	4
1990	3	1	2	4
	3	1	2	4
1995-30%	3	1	2	4
	4	1	2	3
1995	3	1	2	4
	4	1	2	3
1995+30%	3	1	2	4
	4	1	2	3
2000	3	1	2	4
	4	1	2	3

6.136A (24f/96f FO Ca)

First Cost/Revenue Requirements per Circuit

1985	3	1	2	4
	3	1	2	4
1990	3	1	2	4
	4	1	2	3
1995-30%	4	1	2	3
	4	1	2	3
1995	4	1	2	3
	4	1	2	3
1995+30%	3	1	2	4
	4	1	2	3
2000	4	1	2	3
	4	1	2	3

LATA Networks

6.135B (24f/48f FO Ca)

First Cost/Revenue Requirements per Circuit

1983	1	2	3	4
1985	1	2	3	4
	1	2	3	4
1990	1	2	3	4
	1	2	3	4
1995-30%	1	2	3/4	4/3
	1	2	3/4	4/3
1995	1	2	4	3
	1	2	4	3
1995+30%	1	2	4	3
	1	2	4	3
2000	1	2	4	3
	1	2	4	3

Cost Rank (high to low)

11 Node 15 Node 17 Node 23 Node

6.136B (24f/96f FO Ca)

First Cost/Revenue Requirements per Circuit

1985	1	2	3	4
	1	2	3	4
1990	1	2	3	4
	1	2	3	4
1995-30%	1	2	3/4	4/3
	1	2	3/4	4/3
1995	1	2	4	3
	1	2	4	3
1995+30%	1	2	4	3
	1	2	4	3
2000	1	2	4	3
	1	2	4	3

When the networks are compared separately, the lowest cost node network starts as the 23-node network but changes to the 11-node network as the traffic load increases, with the 15-node network ranking first in cost and the 17-node network ranking second throughout. The lowest cost LATA network starts as the 23-node network but changes to the 17-node network as the traffic load increases, with the 11-node network ranking first in cost and the 15-node network ranking second throughout.

Exhibits 6.137 through 6.140

For the remaining two sensitivity scenarios, 1980's Technology and Regulated, the 11-node network is most costly, the 15-node network is second, the 17-node network is third, and the 23-node network is least costly both with regard to first cost per circuit and revenue requirements per circuit.

EXHIBIT 6.1: 11 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)

Link	Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4	Total Miles
1-2	95380.7	83.05	123.81	541.53	719.34	886.71	358.23	350.30	948.22	916.95	710.93	464.92	83.05
1-3	70534.5	70534.5	70534.5										206.86
1-4	148331.8	148331.8	148331.8	148331.8									748.39
1-5	77546.7	77546.7	77546.7	77546.7	77546.7								1467.73
1-6	11340.1	11340.1	11340.1	11340.1	11340.1	11340.1							2354.44
1-7	38136.2	38136.2	38136.2	38136.2	38136.2	38136.2	38136.2						2712.67
1-8	44638.9								44638.9	44638.9	44638.9		2573.10
1-9	32707.5								32707.5	32707.5	32707.5		1627.86
1-10	211717.7								211717.7	211717.7	211717.7		710.93
1-11	40948.4								40948.4	40948.4	40948.4		970.86
2-3	32893.1												123.81
2-4	62759.4												665.34
2-5	28349.5												1384.68
2-6	4955.3												2271.39
2-7	14735.3												2629.62
2-8	17569.0												2656.16
2-9	13273.6												1710.93
2-10	87281.2												793.96
2-11	16955.9												1053.91
3-4	59582.9												541.53
3-5	25795.8												1260.87
3-6	4927.9												2147.58
3-7	13064.2												2505.81
3-8	15094.5												2779.96
3-9	11402.4												1834.74
3-10	74972.7												917.79
3-11	15675.8												1006.45
4-5	94045.8												719.34
4-6	15442.8												1606.08
4-7	49341.8												1964.28
4-8	49321.0												2314.58
4-9	33991.1												1641.80
4-10	205086.5												724.85
4-11	44677.6												464.92
5-6	12622.7												886.71
5-7	40136.3												1244.94
5-8	45565.3												1595.24
5-9	14713.7												2361.14
5-10	114605.3												1444.19
5-11	30290.0												1184.26
6-7	13521.4												358.23
6-8	12930.6												708.53
6-9	5973.4												1653.78
6-10	19783.3												2330.90
6-11	5061.4												2070.97
7-8	63414.8												350.30
7-9	23270.2												1295.52
7-10	79845.1												2212.47
7-11	18842.8												2429.20
8-9	26799.1												945.22
8-10	86850.9												1862.17
8-11	21119.0												2122.10
9-10	62783.7												916.96
9-11	13081.4												1176.86
10-11	67069.9												259.93
Total	2.530846	677819.3	591051.5	546703.3	671801.3	343276.4	301568.3	280320.4	321160.1	437070.8	566561.8	547354.5	502727.5

EXHIBIT 6.1 A: 11 NODE ROUTING MATRIX

Total Traffic = 2,530,758 Erlangs



FIGURE 6.2: 11 NODE NETWORK 1983 TRAFFIC, 48 F0 CABLE

Traffic Factor	5675												
Mileage Factor	1.15												
Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-1	10-11	11-4	Total
Actual Traffic	384662	335422	310284	381247	194809	171140	159082	182258	248038	321824	310624	265298	
VF Ccts Req'd	512883	447229	413672	506330	259746	228187	212109	243011	330717	428698	414168	360397	
Initial Fill	-8												
Total VF Circuits	641104	559036	517090	635412	324682	285233	265136	303764	413396	535873	517706	475496	5473930
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.87	296.92	534.66	7315.06
Circuit Miles(000)	61230	79596	322023	826639	331084	117506	106809	330192	436923	438113	154762	264228	3157096
405 mbps DIGITAL F0 SYSTEM 25 mi Repeater Spacing													
First Cost (\$000)	13638	20332	71144	118130	87369	35297	23011	93134	120465	116749	34149	61079	794498
48 fiber F0 Cable	923	1375	4813	7931	5910	2388	1557	6300	6149	7898	2310	4132	53745
48f Ca Splicing	1013	2255	9865	13103	16152	6826	6381	17218	16703	12980	4735	8469	115871
Cable Installation	4176	3636	3384	4140	2124	1872	1728	2016	2700	3492	3384	3096	35748
F.O. Mtrr/Rcur	5568	7272	28200	46920	29028	10608	9792	29568	36700	38412	13536	22704	280308
F.O. Line Repeater	900	1200	4060	5400	6450	2850	2850	6900	6750	8250	2100	3600	48300
T/Rm Bldng, Power	28650	24960	23100	28380	14520	12780	11880	13890	16480	23940	23130	12420	244690
M13 Mux	95368	61031	144855	224065	161554	72290	57168	168727	211948	208691	83343	124320	1573060
GRAND TOTAL - FC	580	429	232	271	158	175	142	155	201	255	279	233	215
\$ per mile (000)	.90	.77	.45	.43	.49	.62	.54	.51	.49	.48	.54	.49	.50
\$/cct-mi													
Annual Cost (\$000)	5499	8197	28683	47626	35224	14230	9277	37548	46567	47069	13767	24625	320312
48 fiber F0 Cable	372	555	1940	3222	2383	963	628	2540	3285	3184	931	1666	21666
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414	46715
Cable Installation	2619	2281	2123	2597	1332	1174	1084	1265	1694	2190	1223	1942	22423
F.O. Mtrr/Rcur	3492	4561	17688	29430	18208	6654	6142	18546	24274	24094	8490	14241	175820
F.O. Line Repeater	360	479	1518	2157	2577	1138	1138	2756	2696	2097	839	1438	19294
T/Rm Bldng, Power	17970	15586	14489	17801	9108	7997	7433	8524	11891	15016	14508	13323	163417
M13 Mux	30922	32638	70518	106116	75343	34788	28274	78121	96842	98871	42568	60649	759649
GRAND TOTAL - AC	324	229	113	131	74	84	70	72	94	121	142	113	104
\$ per mile (000)	.51	.41	.22	.21	.23	.30	.26	.24	.23	.23	.28	.24	.24
\$/cct-mi													

EXHIBIT 6.2A: 11 NODE NETWORK (1983)

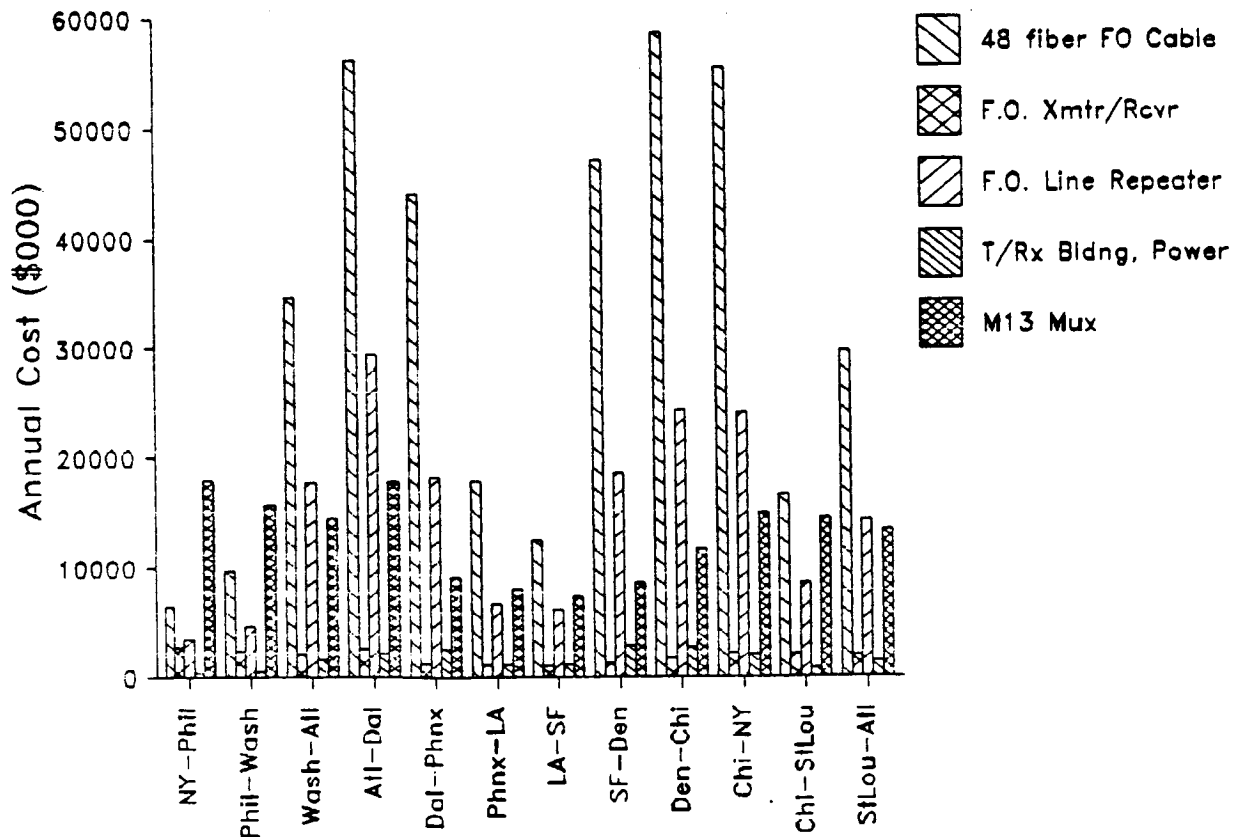
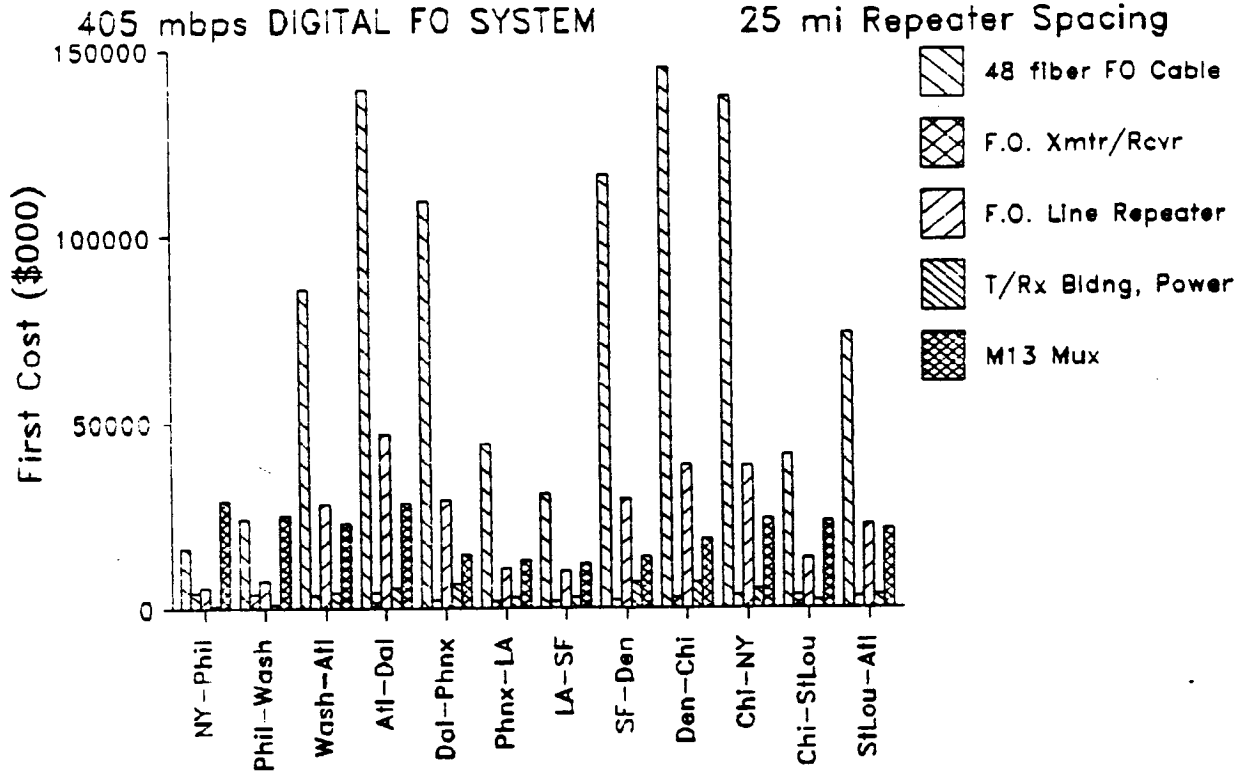


FIGURE 6.3: 11 NODE NETWORK 1985 TRAFFIC, 46f FO CABLE

Traffic Factor Mileage Factor		Route											Total	
		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4		
.684														
1.15														
</														

EXHIBIT 6.3A: 11 NODE NETWORK (1985)

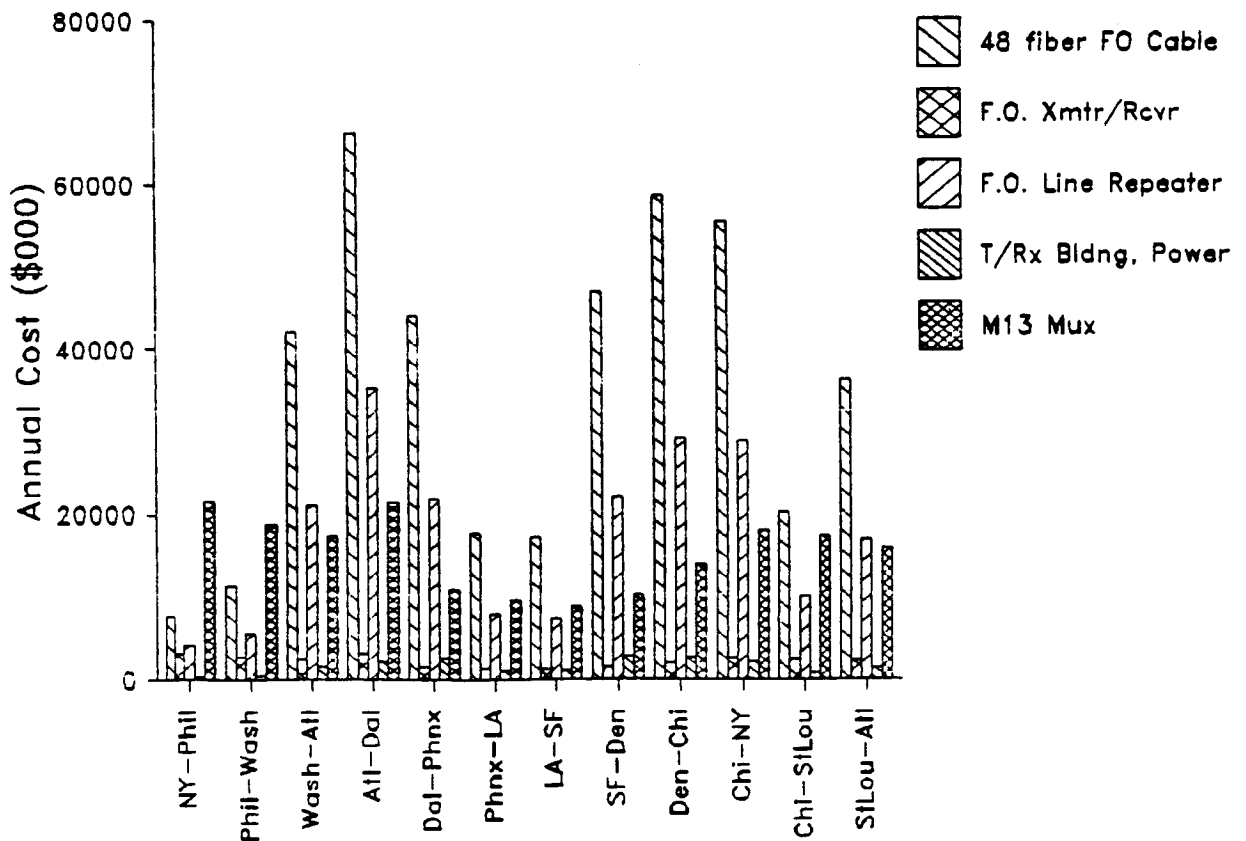
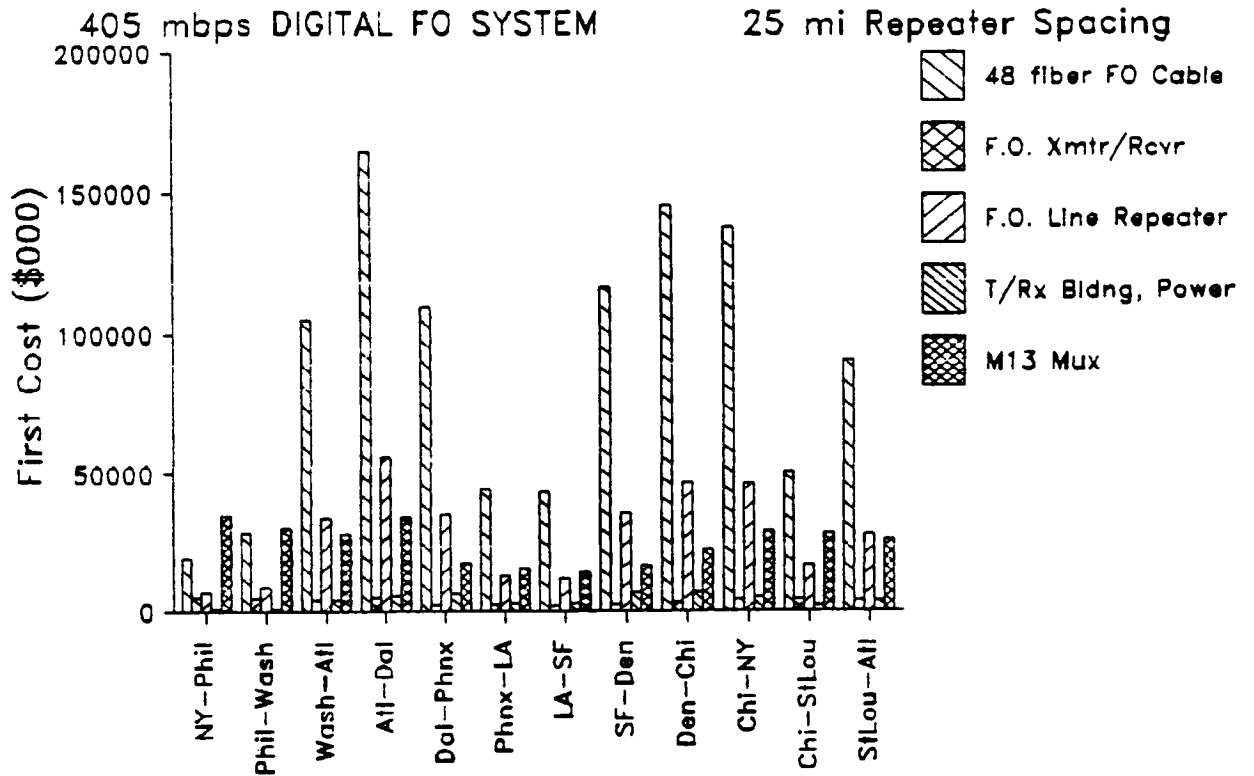


EXHIBIT 6.3B: 11 NODE NETWORK (1985)

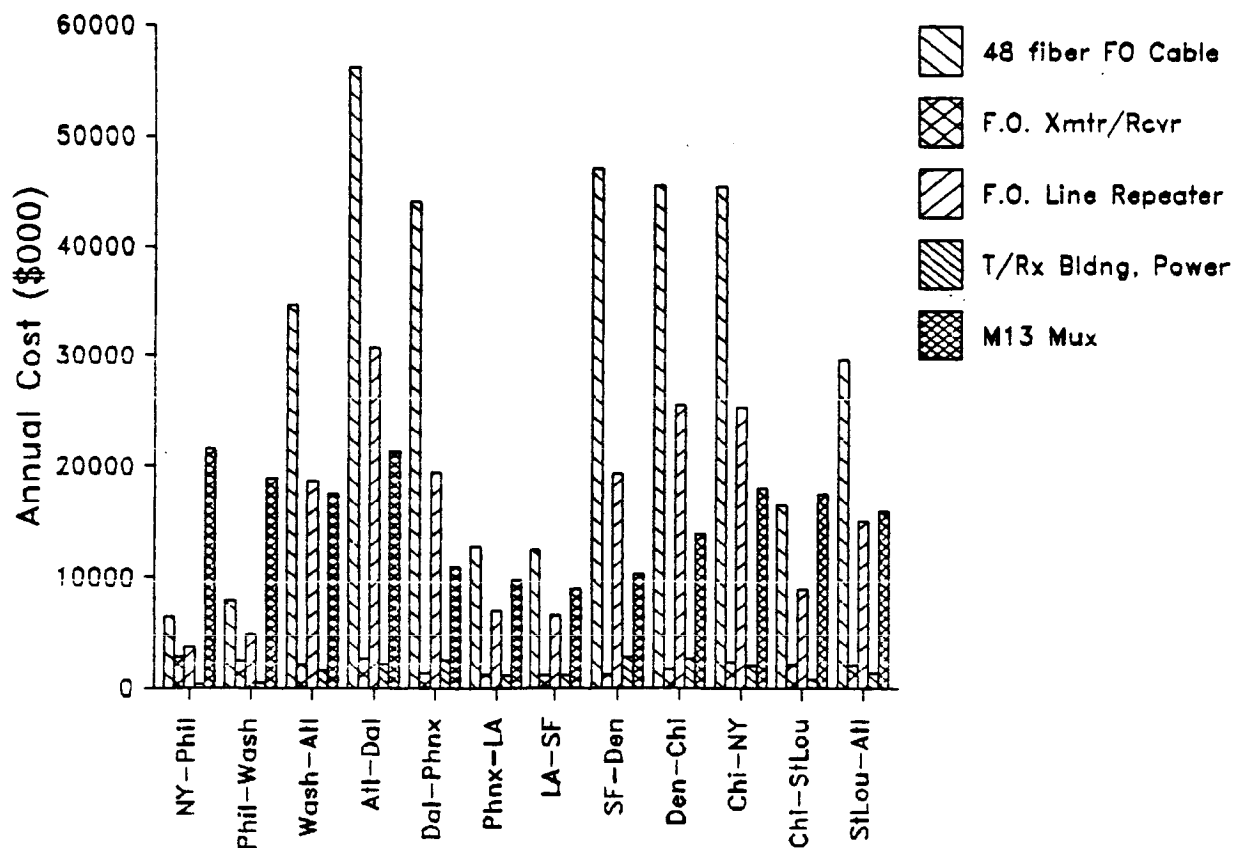
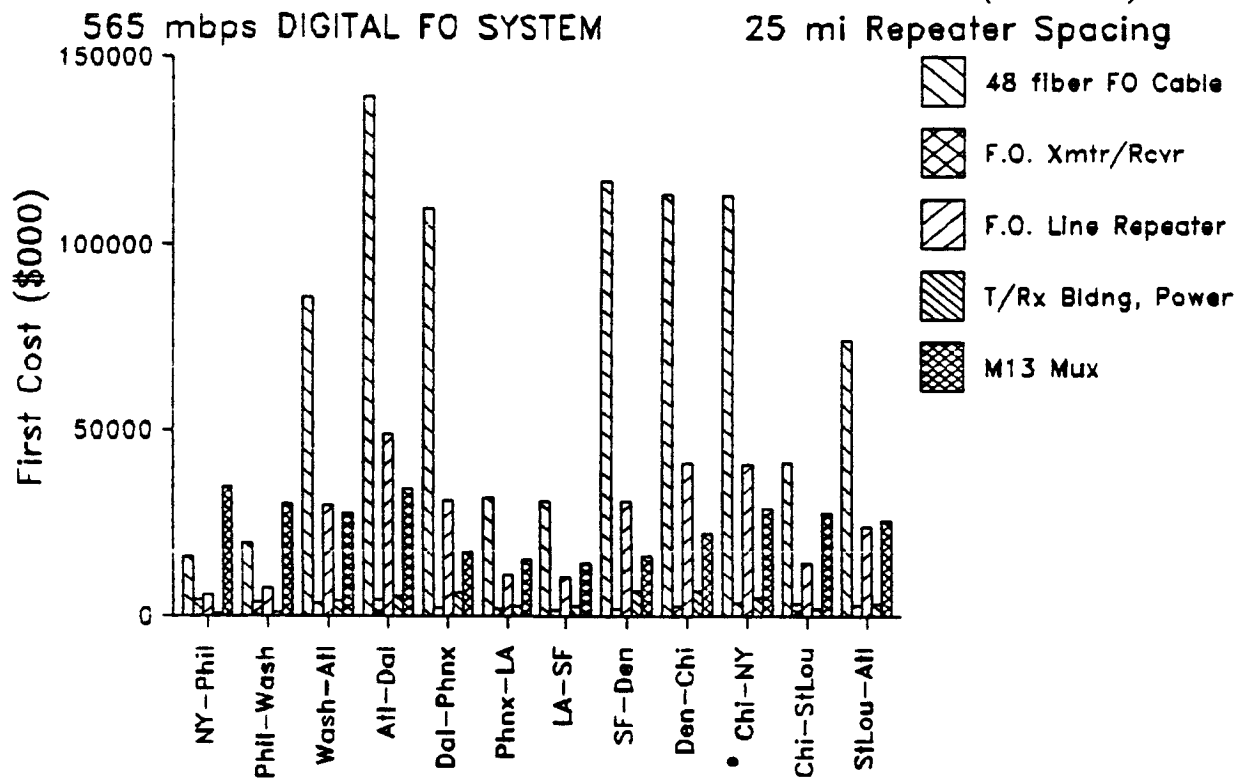


FIGURE 6-4: 11 MODE NETWORK 1985 TRAFFIC, 96f FO CABLE

Traffic Factor Mileage Factor	Route											Total
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4	
Actual Traffic	463628	404279	373948	459512	234801	206279	191739	219674	298956	374390	343866	1731038
VF Ccts Recd	618171	539039	498593	612883	313068	276030	265652	292898	398609	516704	459187	459187
Initial Fill	772714	673799	623242	765853	391335	343788	319565	366123	498261	623984	573109	6597653
Total VF Circuits	95.51	142.38	622.76	827.24	1019.72	411.96	402.88	1087.00	1084.49	817.57	534.66	7315.06
System Mileage	73600	95936	368130	633646	399051	141628	128736	307976	525412	628062	306417	3805205
Circuit Miles(000)												
405 Mbps DIGITAL FO SYSTEM												
25 mi Repeater Spacing												
First Cost (\$000)	15486	23086	100977	134132	110227	44532	43546	117501	113986	132554	86592	971197
96 fiber FO Cable	1038	1547	6767	8989	7387	2984	2918	7874	7639	8884	5810	65084
96f Ca Splicing	1813	2255	9855	13103	16152	6526	5381	17218	16703	12950	8469	115871
Cable Installation	5004	4392	4068	4968	2556	2232	2088	2412	3240	4176	3708	42912
F.O. Mtr/Rcvr	5872	8784	33900	56304	34932	12648	11832	35376	46440	48936	27192	336288
F.O. Line Repeater	900	1200	4050	5400	6450	2850	2850	6900	6750	8250	3600	48300
1/RM Bldg, Power	34500	30090	27840	34200	17490	15360	14280	16350	22260	28860	27870	294690
M13 Num	65113	71365	187466	257096	195194	87132	83895	203631	217018	238620	161060	1874342
GRAND TOTAL - FC	682	501	301	311	212	212	208	187	206	292	301	256
\$ per mile (000)	.68	.74	.48	.41	.49	.62	.65	.51	.41	.45	.53	.49
\$/cct-mi												284.09
\$/cct												
Annual Cost (\$000)	6243	9308	40710	54077	44440	17954	17556	47372	45955	53445	34951	391551
96 fiber FO Cable	418	624	2728	3624	2978	1203	1177	3175	3080	3582	2342	26240
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414	46715
Cable Installation	3139	2755	2552	3116	1603	1400	1310	1513	2032	2619	2326	26916
F.O. Mtr/Rcvr	4185	5510	21263	35316	21911	7933	7421	22189	29129	28813	17056	210933
F.O. Line Repeater	360	479	1618	2157	2577	1138	1138	2756	2696	2097	1438	19294
1/RM Bldg, Power	21540	18874	17462	21452	10970	9634	8957	10255	13962	18102	16051	184841
M13 Num	36595	38458	90310	125025	90991	41894	40132	94202	103689	113879	77578	906490
GRAND TOTAL - AC	383	270	145	151	89	102	100	87	98	139	145	124
\$ per mile (000)	.50	.40	.23	.20	.23	.30	.31	.24	.20	.22	.25	.24
\$/cct-mi												137.40
\$/cct												
565 Mbps DIGITAL FO SYSTEM												
25 mi Repeater Spacing												
First Cost (\$000)	15391	67318	67318	134132	110227	22266	21773	117501	113986	98376	57794	796562
96 fiber FO Cable	1031	4511	4511	6989	7387	1492	1459	7874	7639	5922	3673	53381
96f Ca Splicing	1513	9855	9855	13103	16152	6526	6381	17218	16703	12950	8469	115871
Cable Installation	4368	3822	3570	4326	2268	1974	1848	2100	2856	3696	3276	37675
F.O. Mtr/Rcvr	5824	7644	29751	49029	30997	11186	10472	30801	40937	40657	24025	295604
F.O. Line Repeater	900	1200	4050	5400	6450	2850	2850	6900	6750	8250	3600	48300
1/RM Bldg, Power	34500	30090	27840	34200	17490	15360	14280	16350	22260	28860	27870	294690
M13 Num	63629	61434	146905	249180	190971	61654	59063	198744	211132	186712	126627	1642084
GRAND TOTAL - FC	666	431	236	301	187	150	147	183	200	227	237	248.89
\$ per mile (000)	.86	.64	.38	.39	.48	.44	.46	.50	.40	.36	.41	.43
\$/cct-mi												248.89
\$/cct												
Annual Cost (\$000)	6243	6205	27140	54077	44440	8977	8778	47372	45955	36630	23301	321145
96 fiber FO Cable	418	416	1819	3624	2978	602	588	3175	3080	3582	1561	21521
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414	46715
Cable Installation	2740	2397	2239	2714	1423	1238	1159	1317	1791	2318	2055	23631
F.O. Mtr/Rcvr	3653	4795	18661	30753	19442	7017	6659	19320	25677	26502	15069	185415
F.O. Line Repeater	360	479	1618	2157	2577	1138	1138	2756	2696	2097	1438	19294
1/RM Bldg, Power	21640	18874	17462	21452	10970	9634	8957	10255	13962	18102	16051	184841
M13 Num	36564	34075	72962	120059	88342	31237	29762	91137	99896	91258	62890	802562
GRAND TOTAL - AC	373	239	117	145	87	76	74	84	95	112	118	118
\$ per mile (000)	.48	.36	.19	.19	.22	.22	.23	.23	.19	.17	.21	.21
\$/cct-mi												121.64
\$/cct												

EXHIBIT 6.4A: 11 NODE NETWORK (1985)

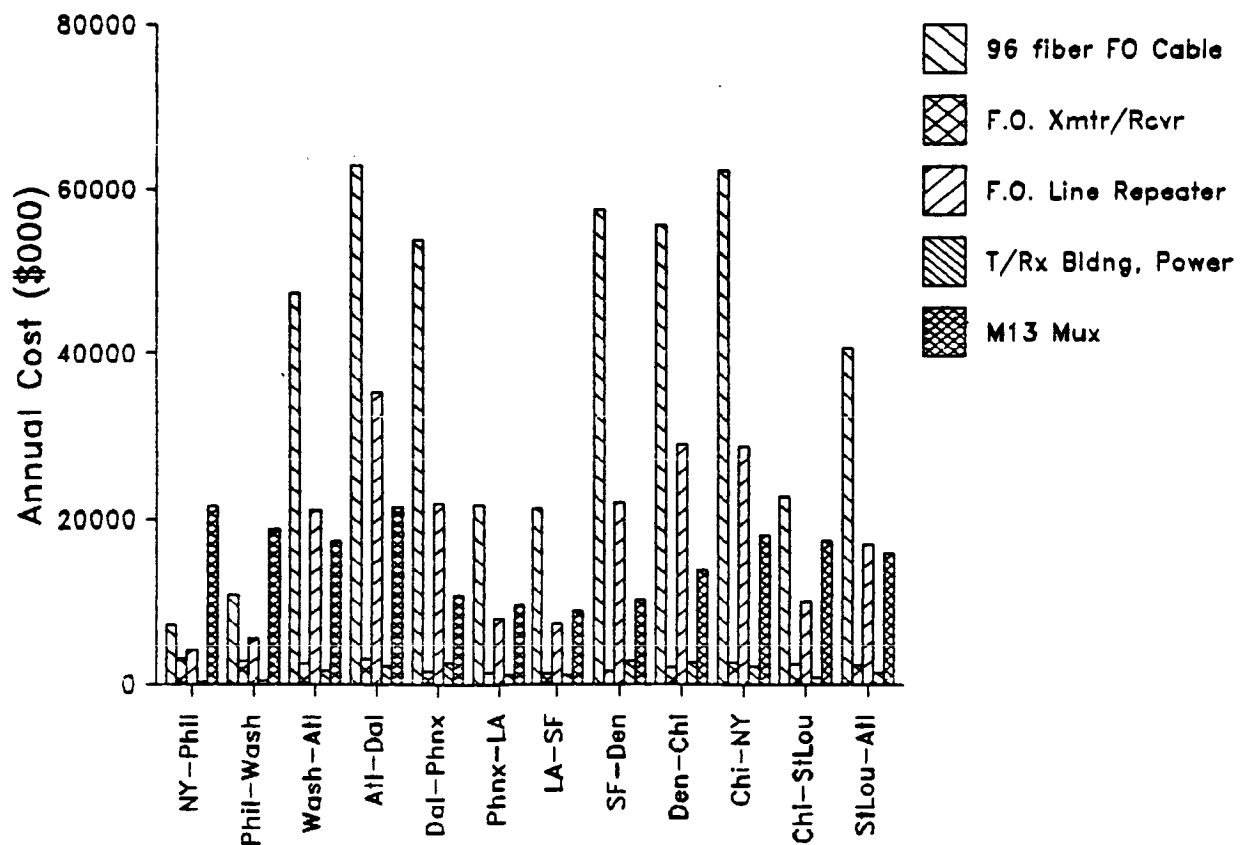
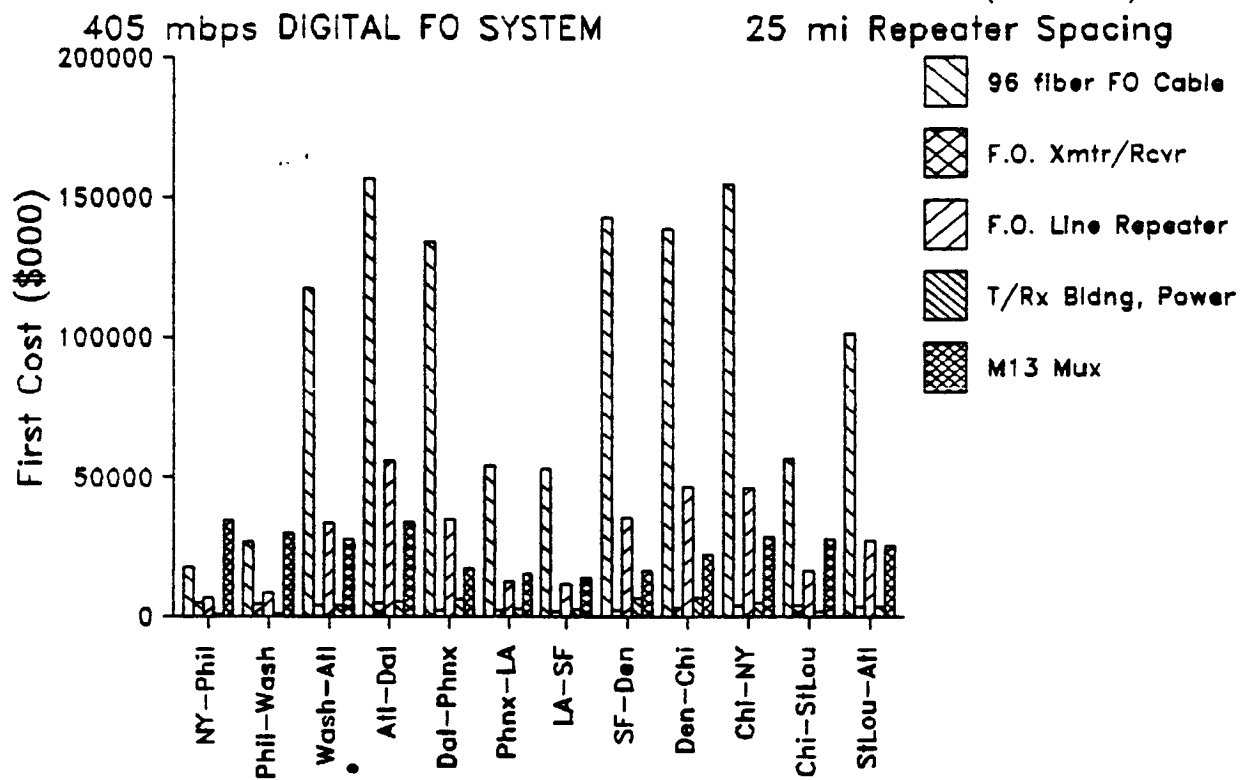


EXHIBIT 6.4B: 11 NODE NETWORK (1985)

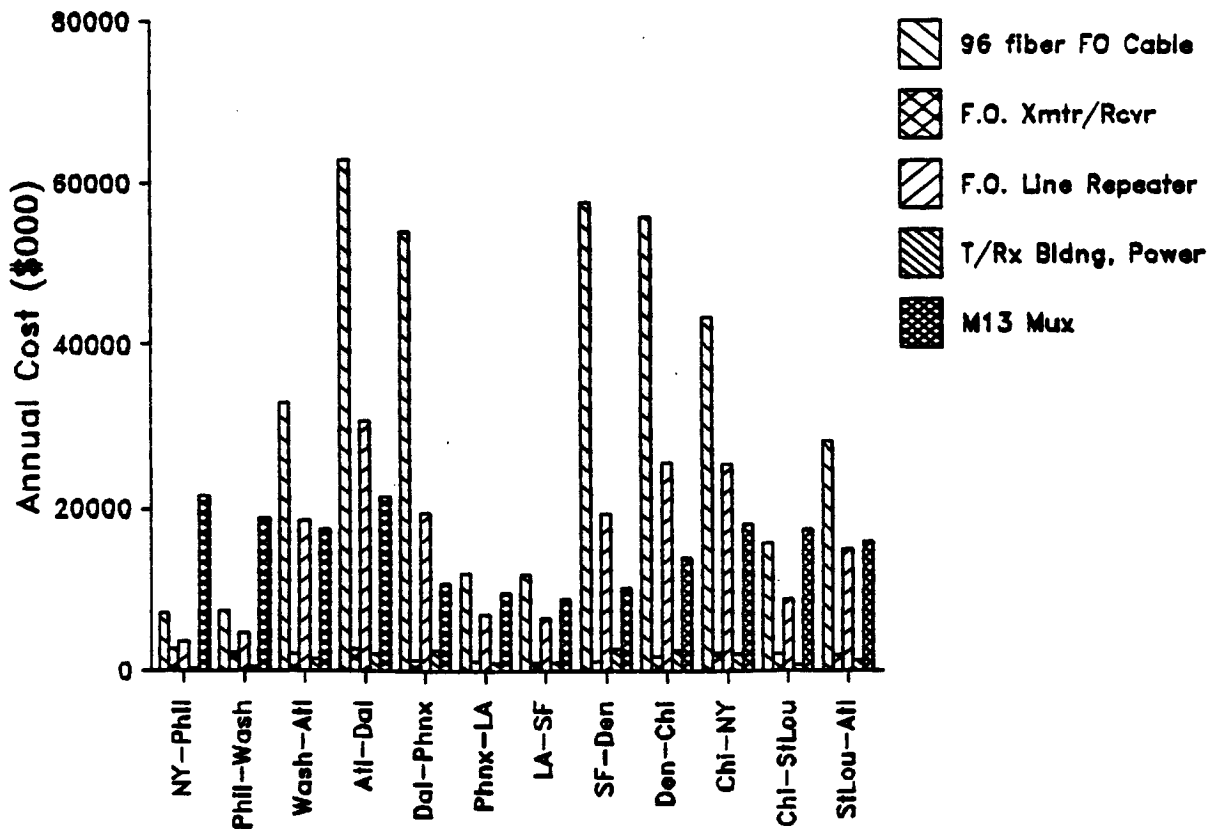
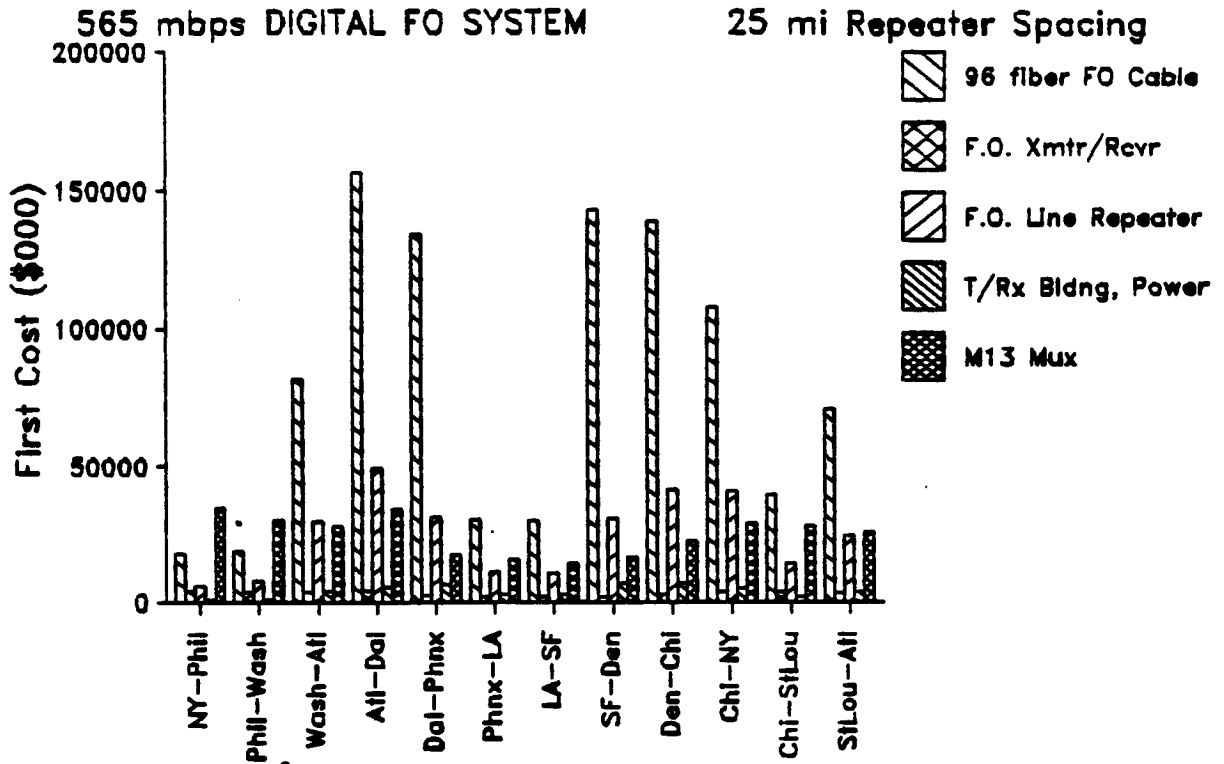


FIGURE 6.5: 11 NODE NETWORK 1990 TRAFFIC, 48f FO CABLE

Traffic Factor Mileage Factor	11 NODE NETWORK										
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total
Actual Traffic	772714	673799	623242	765853	391335	343788	319565	366123	498261	648890	573109
Vf Ccts Req'd	1030285	898398	830989	1021138	521780	468384	426087	488163	664348	861174	764146
Initial Fill	.6										
Total V/C Circuits	1287857	1038736	1276422	1652225	101972	11196	40285	108700	108449	1076467	955182
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1084.49	817.57	534.66
Circuit Miles (000)	123000	159894	646883	1085909	665085	236047	214559	663294	878687	880087	510696
810 Mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing											
First Cost (\$000)	8183	12199	35572	70878	58246	23531	23011	.62090	60233	70049	30540
48 fiber FO Cable	554	825	2406	4795	3940	1592	1557	4200	4075	4739	1155
48f Ca Splicing	1813	2255	9865	13103	16152	6526	6381	17218	16703	12950	8469
Cable Installation	3717	3213	2961	3654	1890	1638	1575	1827	2394	3087	2772
F.O. Mntn/Rcvr	2478	3213	12831	20706	13230	4914	4725	17556	17493	5922	10164
F.O. Line Repeater	600	750	2250	2850	3450	1650	1650	3600	3600	1200	1950
T/Rh Bldng, Power	100643	87780	81165	99750	50978	44783	41633	47723	64890	84108	74655
M13 Mux	117687	110236	147050	215736	147886	84633	80531	150055	169450	195273	130616
GRAND TOTAL - FC	1232	774	236	261	145	205	200	138	161	239	382
\$ per mile (000)	.96	.69	.23	.20	.22	.36	.38	.23	.19	.22	.26
\$/cct-mi											
Annual Cost (\$000)	3299	4918	14341	28575	23483	9487	9277	25032	24284	28241	12312
48 fiber FO Cable	225	333	970	1933	1589	642	628	1693	1643	1910	466
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909
Cable Installation	2331	2015	1857	2292	1185	1027	988	1146	1502	1936	1857
F.O. Mntn/Rcvr	1554	2015	8048	12988	8298	3082	2964	8404	11012	10972	3715
F.O. Line Repeater	2540	300	899	1138	1378	659	659	1438	1438	479	779
T/Rh Bldng, Power	63127	55059	50910	62567	31975	28089	26114	29933	40702	52754	50976
M13 Mux	71385	65550	81003	114776	74420	45618	43201	74889	87313	102174	66285
GRAND TOTAL - AC	747	460	130	139	73	111	107	69	83	126	222
\$ per mile (000)	.58	.41	.13	.11	.11	.19	.20	.11	.10	.12	.14
\$/cct-mi											
1.7 Gbps DIGITAL FO SYSTEM 50 mi Repeater Spacing											
First Cost (\$000)	5455	8133	17786	47252	29123	11766	11505	31045	30116	46700	15270
48 fiber FO Cable	369	550	1203	3196	1970	796	778	2100	2037	3159	1033
48f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	8469
Cable Installation	3780	3276	3024	3780	2016	1638	1638	1890	2520	3150	2772
F.O. Mntn/Rcvr	2520	3276	13104	21420	14112	4914	4914	13860	18480	17950	6048
F.O. Line Repeater	600	750	2250	2850	3450	1650	1650	3600	3600	1200	1950
T/Rh Bldng, Power	100643	87780	81165	99750	50978	44783	41633	47723	64890	84108	74655
M13 Mux	114880	106020	128397	191352	117801	72072	68499	117436	138347	170764	105392
GRAND TOTAL - FC	1203	745	206	231	116	175	170	108	131	209	303
\$ per mile (000)	.93	.66	.20	.18	.18	.31	.32	.18	.16	.19	.22
\$/cct-mi											
Annual Cost (\$000)	2199	3279	7171	19050	11741	4743	4638	12516	12142	18828	3442
48 fiber FO Cable	149	222	485	1289	794	321	314	847	821	1274	416
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909
Cable Installation	2371	2055	1897	2371	1265	1027	1027	1185	1581	1976	1897
F.O. Mntn/Rcvr	1681	2085	8219	13435	8852	3082	3082	8694	11591	11196	3794
F.O. Line Repeater	240	300	899	1138	1378	659	659	1438	1438	479	779
T/Rh Bldng, Power	63127	55059	50910	62567	31975	28089	26114	29933	40702	52754	50976
M13 Mux	70276	63878	73558	105134	62517	40553	38407	61555	75009	92387	62729
GRAND TOTAL - AC	736	449	116	127	61	98	95	57	71	113	210
\$ per mile (000)	.57	.40	.11	.10	.09	.17	.18	.09	.09	.10	.13
\$/cct-mi											

EXHIBIT 6.5A: 11 NODE NETWORK (1990)

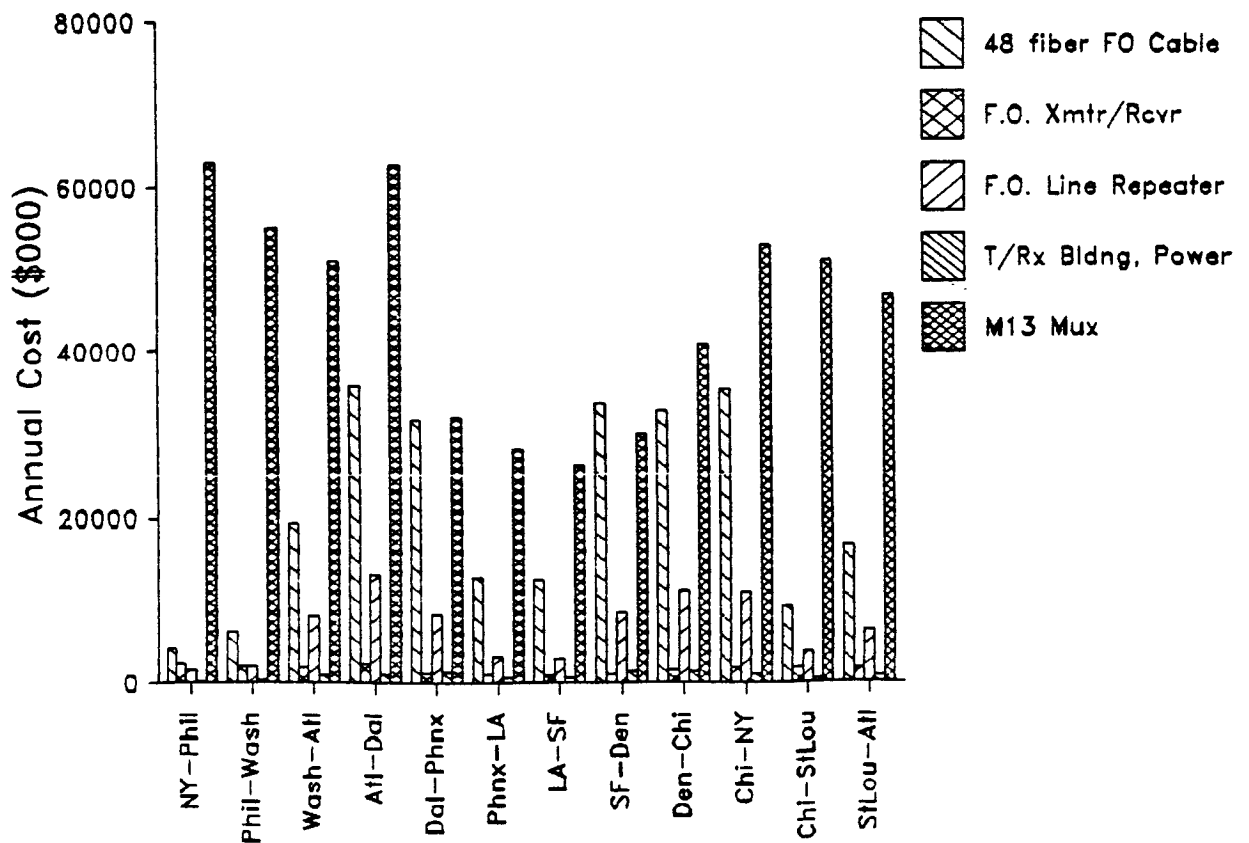
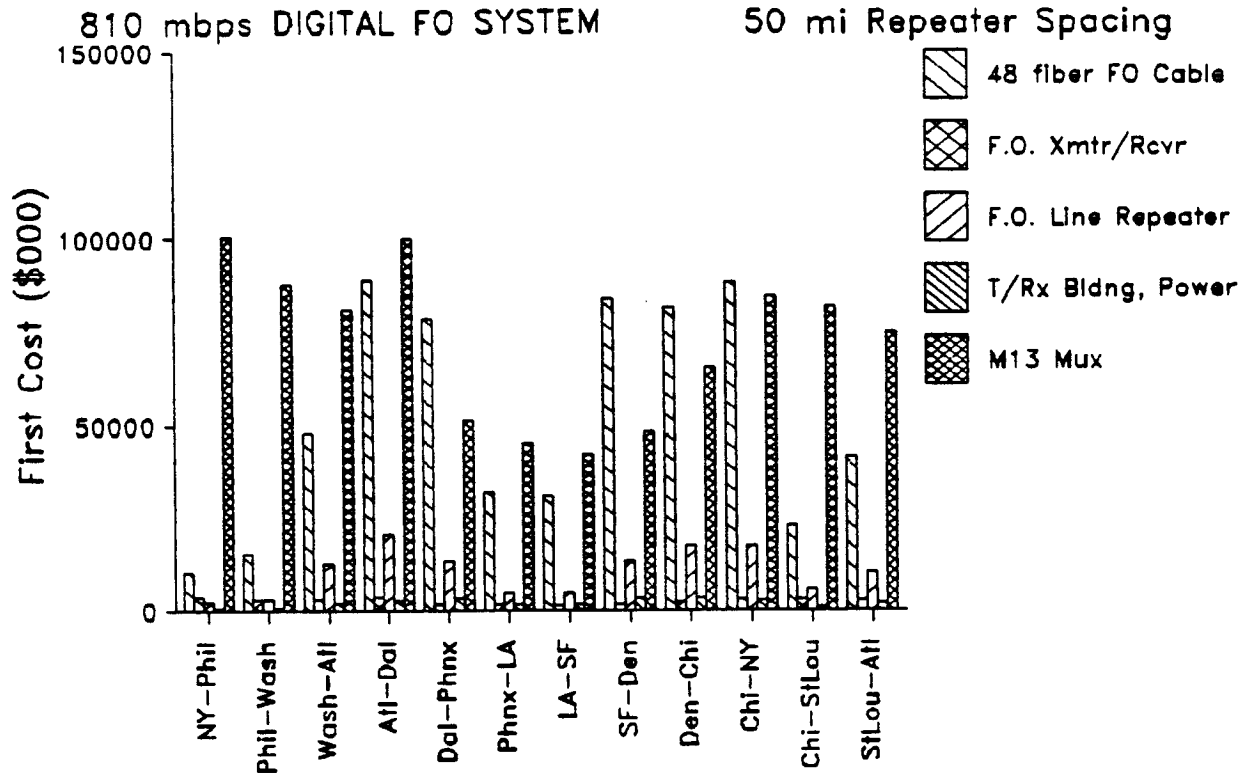


EXHIBIT 6.5B: 11 NODE NETWORK (1990)

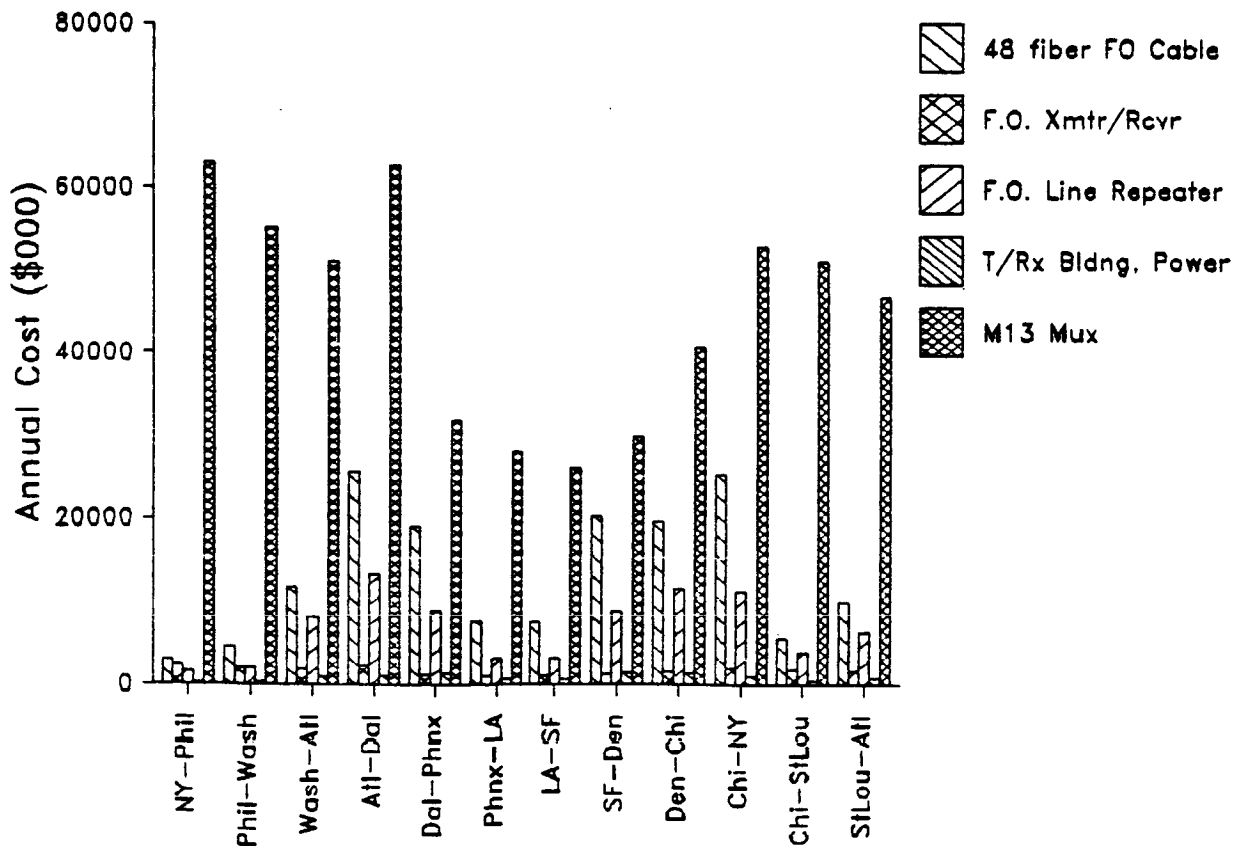
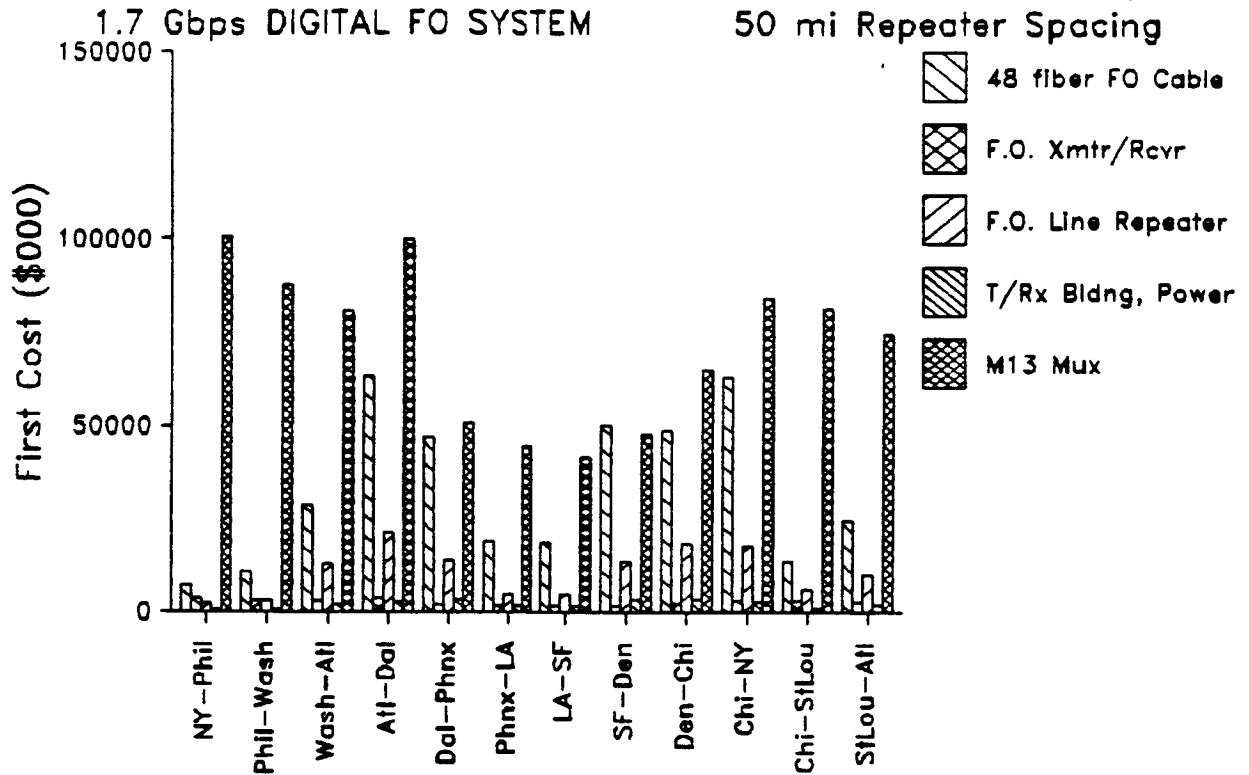


FIGURE 6.6: 11 NODE NETWORK 1990 TRAFFIC, 96f FO CABLE

Traffic Factor Mileage Factor	Route										Total
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	
Actual Traffic	772714	673799	623242	765853	391335	343788	319565	366123	498261	645890	573109
UF Ccts Req'd	1030285	898398	830989	1021138	521780	458384	426087	488163	664348	861174	764146
Initial Fill	1287857	1122998	1038736	1276422	632225	572980	532609	610204	830435	1076467	955182
Total VF Circuits	95.61	142.38	622.76	827.24	1019.72	411.96	402.86	1087.00	1054.49	1817.57	534.66
System Mileage	123000	159894	646883	1085909	665085	236047	214589	663294	875687	980087	510696
Circuit Miles(000)											6342009

810 Mbps DIGITAL FO SYSTEM											
50 mi Repeater Spacing											
First Cost (\$000)	10324	15391	33659	69421	55114	22266	21773	58750	56993	98376	497120
96 fiber FO Cable	692	1031	2256	5993	3693	1492	1409	3937	3819	5922	33314
96f Ca Splicing	1513	3213	9865	13103	16182	6526	6381	17218	16703	12950	115871
Cable Installation	3717	3213	2961	3654	1890	1638	1575	1827	2394	3087	2772
F.O. Mtr/Rcvr	2478	3213	12831	20706	13230	4914	4725	13398	17556	17493	126630
F.O. Line Repeater	600	760	2250	2850	3450	1650	1650	3600	3600	2850	26400
T/RM Bldg, Power	100643	87780	81165	99750	50978	44783	41633	47723	64890	84105	859373
M13 Mux	119966	113634	144966	235477	144507	83268	79196	146453	165956	214784	1690397
GRAND TOTAL - FC	1256	798	233	285	142	202	197	135	157	263	231
\$ per mile (000)											
\$/cct-mi	.96	.71	.22	.22	.22	.35	.37	.22	.19	.24	.27

Annual Cost (\$000)											
96 fiber FO Cable	4162	6205	13570	36051	22220	8977	8778	23686	22978	35630	200421
96f Ca Splicing	279	416	909	2416	1489	602	588	1587	1540	2388	13431
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414
F.O. Mtr/Rcvr	2331	2015	1857	2292	1185	1027	988	1146	1502	1936	19877
F.O. Line Repeater	1554	2015	6048	12988	8298	3082	2964	8404	11012	10972	79427
T/RM Bldg, Power	240	300	899	1136	1378	659	659	1438	1438	1138	10546
M13 Mux	63127	55059	50910	62867	31975	28089	26114	29933	40702	52754	539033
GRAND TOTAL - AC	72303	66919	80170	123735	73058	48067	46663	73136	85905	110040	909449
\$ per mile (000)	757	470	129	148	72	109	106	67	81	135	124
\$/cct-mi	.59	.42	.12	.12	.11	.19	.20	.11	.10	.13	.14

1.7 Gbps DIGITAL FO SYSTEM											
50 mi Repeater Spacing											
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	395364
96 fiber FO Cable	346	516	2256	2996	3693	1492	1409	3937	3819	2951	26495
96f Ca Splicing	1513	2255	9865	13103	16182	6526	6381	17218	16703	12950	115871
Cable Installation	3780	3276	3024	3780	2016	1638	1638	1890	2520	3150	32508
F.O. Mtr/Rcvr	2520	3276	13064	21420	14112	4914	4914	13860	18480	17850	17850
F.O. Line Repeater	600	750	2250	2850	3450	1650	1650	3600	3600	2850	26400
T/RM Bldg, Power	100643	87780	81165	99750	50978	44783	41633	47723	64890	84105	859373
M13 Mux	114563	105548	145322	189610	145515	83268	79448	146978	167006	169055	1586572
GRAND TOTAL - FC	1200	741	233	228	143	202	197	135	158	206	217
\$ per mile (000)											
\$/cct-mi	.93	.66	.22	.18	.22	.35	.37	.22	.19	.19	.25

Annual Cost (\$000)											
96 fiber FO Cable	2081	3103	13570	18026	22220	8977	8778	23686	22978	17815	159396
96f Ca Splicing	139	208	909	1208	1489	602	588	1587	1540	2388	13431
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414
F.O. Mtr/Rcvr	2371	2055	1897	2371	1265	1027	988	1146	1502	1936	19877
F.O. Line Repeater	1581	2055	6219	13435	8852	3082	3082	8694	11591	11196	81966
T/RM Bldg, Power	240	300	899	1138	1378	659	659	1438	1438	1138	10546
M13 Mux	63127	55059	50910	62867	31975	28089	26114	29933	40702	52754	539033
GRAND TOTAL - AC	70149	63688	80381	104029	73690	48067	46663	73466	86563	91294	868718
\$ per mile (000)	734	447	129	126	72	109	106	68	82	112	119
\$/cct-mi	.57	.40	.12	.10	.11	.19	.20	.11	.10	.21	.14

EXHIBIT 6.6A: 11 NODE NETWORK (1990)

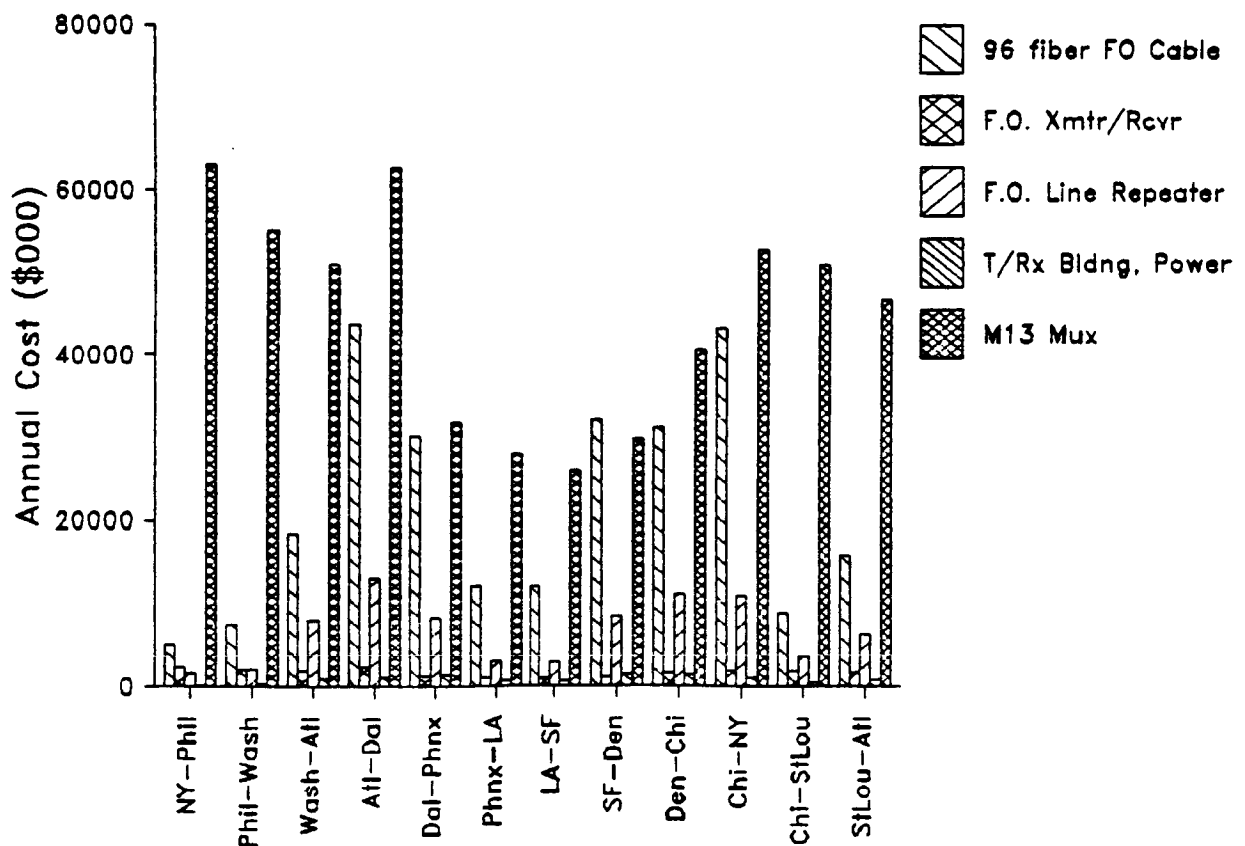
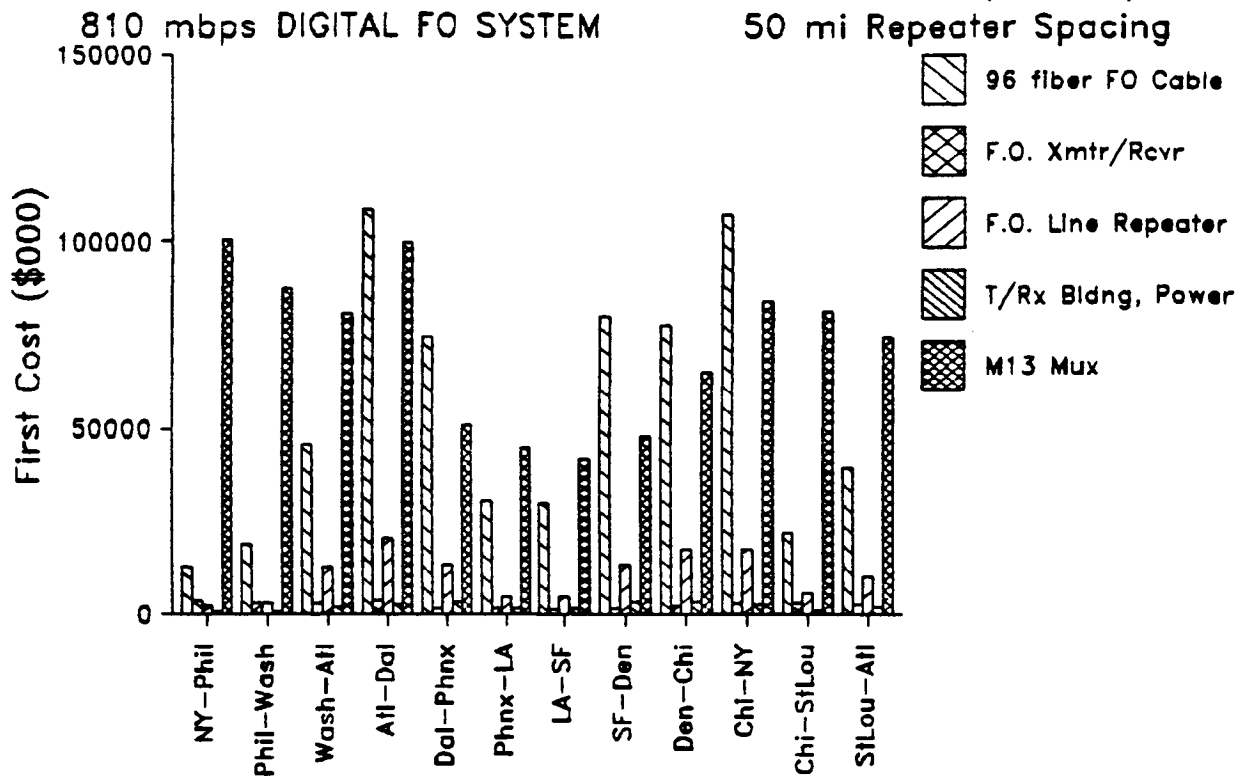


EXHIBIT 6.6B: 11 NODE NETWORK (1990)

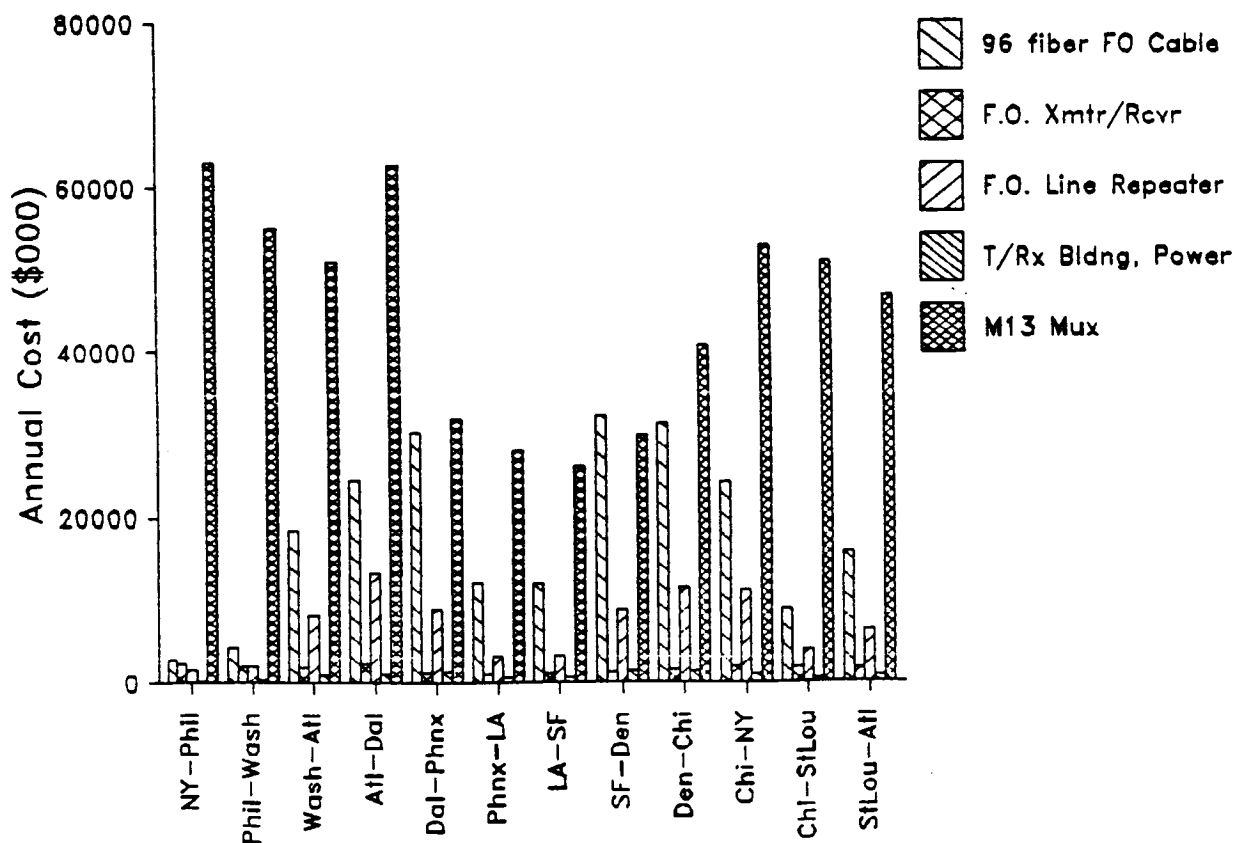
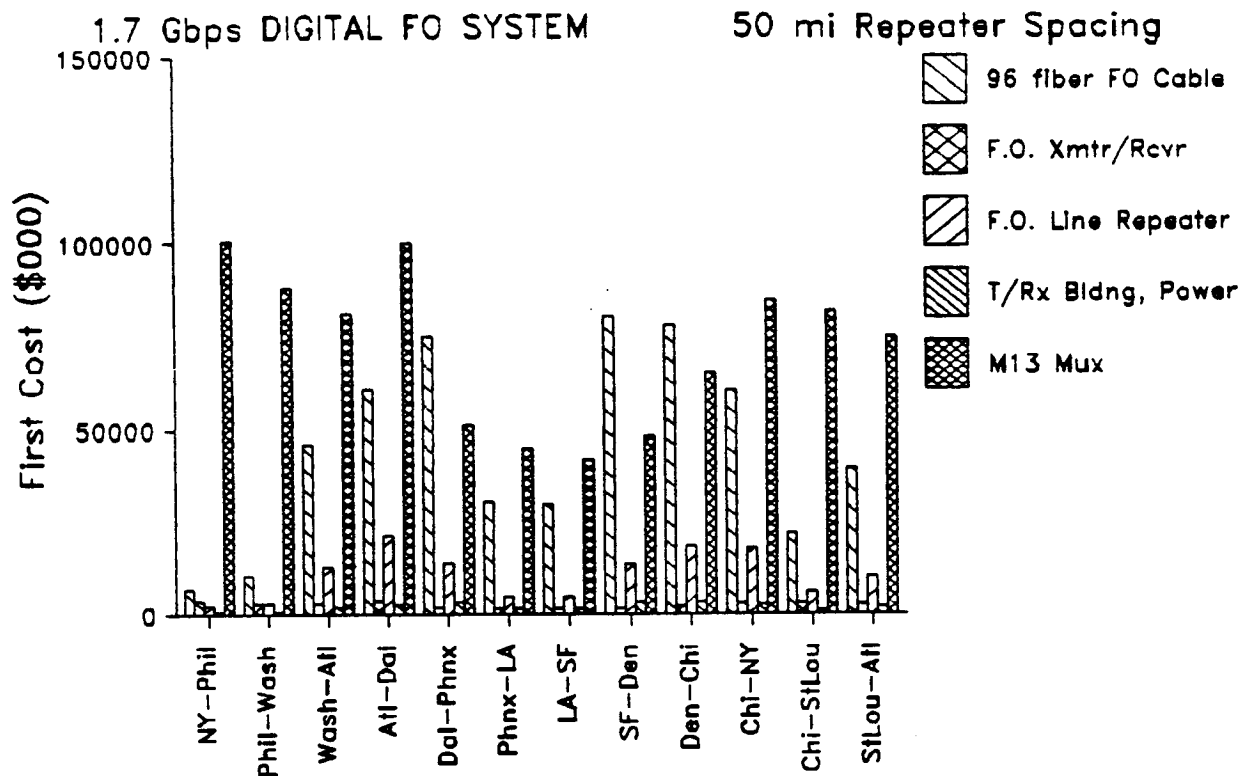


FIGURE 6.7: 11 NODE NETWORK 1995 TRAFFIC, 48f FO CABLE

Route	11 NODE NETWORK										Total
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	
Traffic Factor	1.955										
Mileage Factor	1.15										
Actual Traffic	1325137	1155506	1068808	1313372	671108	589566	548026	627868	854473	1070078	982832
VF Ccts Req'd	1766849	1540674	1425073	1761162	894807	786088	730702	837157	1139298	1426771	1310443
Initial Fill											
Total VF Circuits	2208561	1925843	1781342	2188953	1118509	982610	913377	1046447	1424122	1783463	1636054
System Mileage	95.61	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	298.92
Circuit Miles(000)	210934	274204	1109347	1810791	1140562	404800	367949	1137491	1801726	1809272	878799
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)	8133	8133	35572	70878	58246	11766	11505	31045	60233	46700	30540
48 fiber FO Cable	554	550	2406	4795	3940	796	778	2100	4078	3159	2066
48f Ca Splicing	1513	2255	9665	13103	16152	6526	6361	17218	16703	12950	8469
Cable Installation	6300	9544	5166	6300	3276	2898	2846	3024	4158	5418	4662
F.O. Hwtr/Rcur	2100	3696	12084	18900	12012	4830	4410	11058	15246	16254	9324
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	1200
T/Rw Bldg, Power	172568	150465	139178	171045	87413	76808	71400	81795	111300	144270	127995
N13 Num	191667	171243	205590	286671	182989	104673	98171	148220	213654	230401	173381
GRAND TOTAL - FC	2007	1203	330	347	179	254	244	136	203	282	345
\$ per mile (000)	.91	.62	.19	.16	.16	.26	.27	.13	.14	.15	.21
\$/cct-mi											
Annual Cost (\$000)	3299	3279	14341	28575	23463	4743	4638	12516	24284	18828	12312
48 fiber FO Cable	223	222	970	1933	1589	321	314	847	1643	1274	833
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414
Cable Installation	3952	3477	3240	3952	2055	1818	1660	1837	2608	3356	2924
F.O. Hwtr/Rcur	1317	2318	7561	11855	7534	3030	2766	6955	9853	10195	5848
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	479
T/Rw Bldg, Power	108241	94378	87298	107286	54829	48177	44785	51305	69812	90492	80284
N13 Num	117822	104823	117926	159543	96780	61139	57155	81240	115422	130037	106095
GRAND TOTAL - AC	1234	736	189	193	95	148	142	75	109	159	198
\$ per mile (000)	.56	.38	.11	.09	.08	.15	.16	.07	.08	.09	.12
\$/cct-mi											
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)	2728	4066	17786	23626	29123	11766	11505	31045	30116	23350	15270
48 fiber FO Cable	185	275	1203	1598	1970	796	778	2100	2037	1530	1033
48f Ca Splicing	1513	2255	9665	13103	16152	6526	6361	17218	16703	12950	8469
Cable Installation	6615	9670	5355	6615	3465	3150	2835	3150	4098	5670	5040
F.O. Hwtr/Rcur	2205	3780	12495	19845	12705	5280	4725	11550	15015	17010	10090
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	1200
T/Rw Bldg, Power	172568	150465	139178	171045	87413	76808	71400	81795	111300	144270	127995
N13 Num	186263	157112	187231	237483	152778	105345	98675	148808	181217	206490	164645
GRAND TOTAL - FC	1950	1174	301	287	150	256	245	137	172	253	316
\$ per mile (000)	.88	.61	.17	.13	.13	.26	.27	.13	.12	.14	.19
\$/cct-mi											
Annual Cost (\$000)	1100	1639	7171	9525	11741	4743	4638	12516	12142	9414	6156
48 fiber FO Cable	74	111	485	644	794	321	314	847	821	637	416
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414
Cable Installation	4149	3556	3359	4149	2173	1976	1778	1976	2869	3856	3161
F.O. Hwtr/Rcur	1383	2371	7837	12448	7969	3293	2964	7245	9418	10659	6323
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	479
T/Rw Bldg, Power	108241	94378	87298	107286	54829	48177	44785	51305	69812	90492	80284
N13 Num	115737	103204	110664	139994	84798	61560	57471	81678	102275	120648	99997
GRAND TOTAL - AC	1212	725	149	169	83	149	143	78	97	148	187
\$ per mile (000)	.55	.38	.10	.08	.07	.15	.16	.07	.07	.08	.11
\$/cct-mi											

EXHIBIT 6.7A: 11 NODE NETWORK (1995)

1.7 Gbps DIGITAL FO SYSTEM

100 mi Repeater Spacing

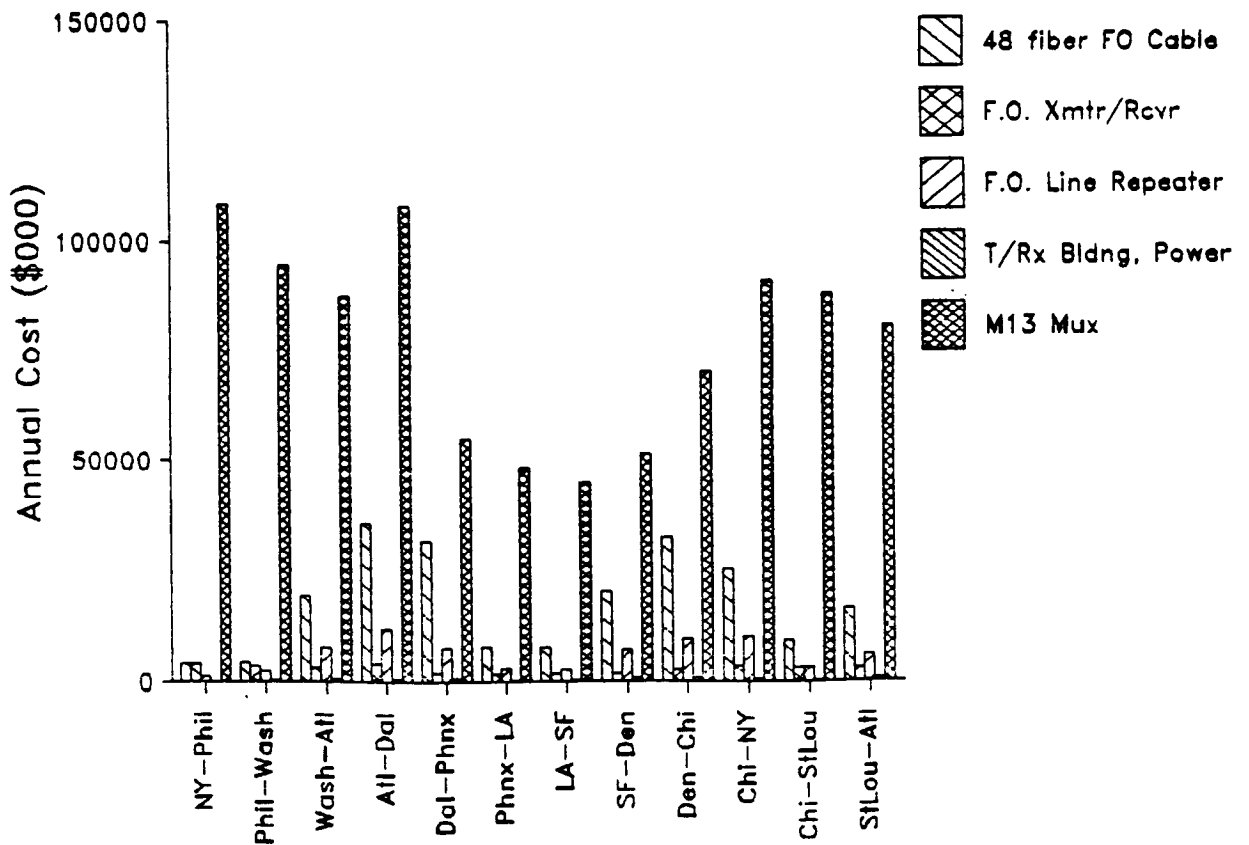
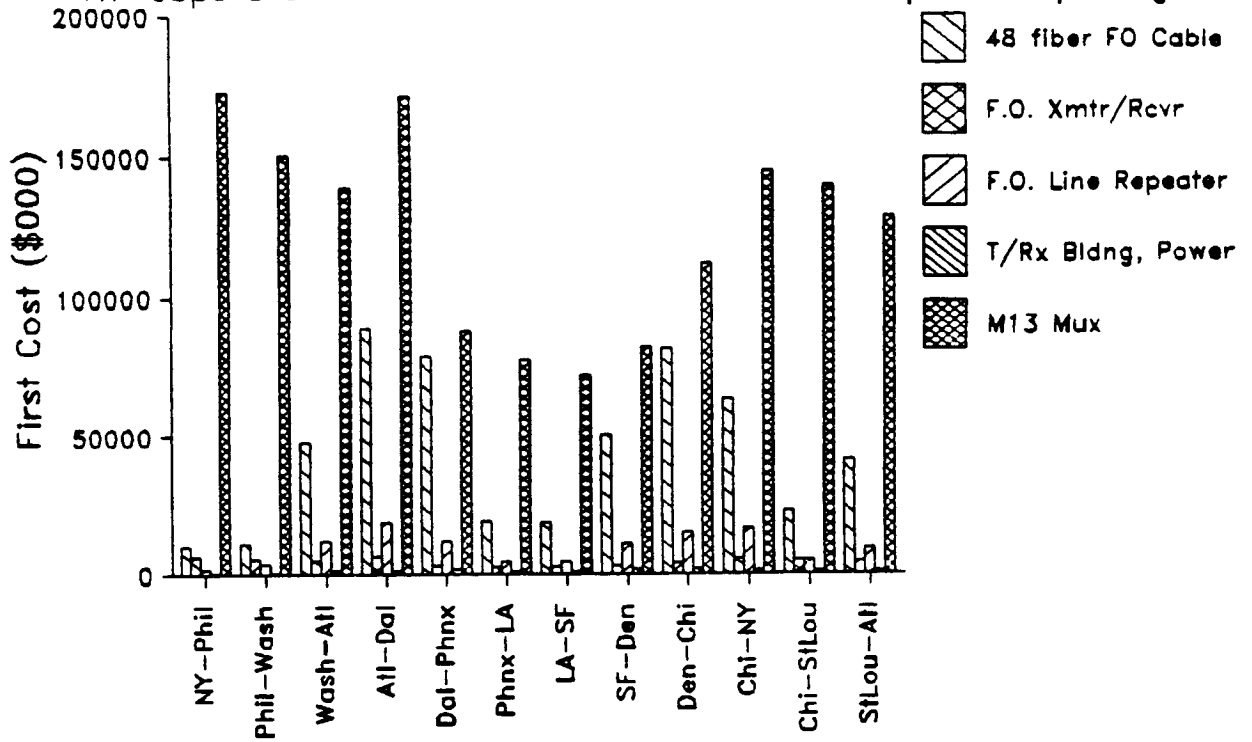


EXHIBIT 6.7B: 11 NODE NETWORK (1995)

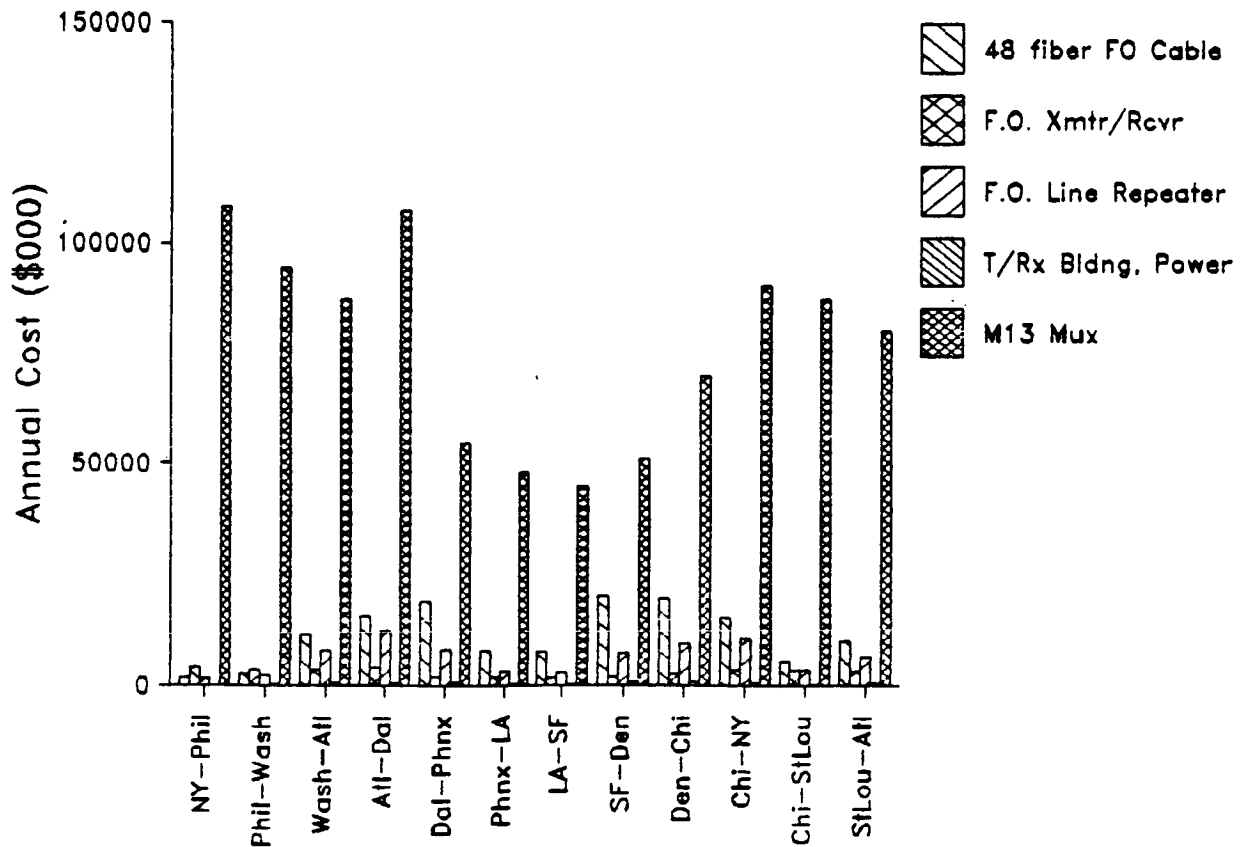
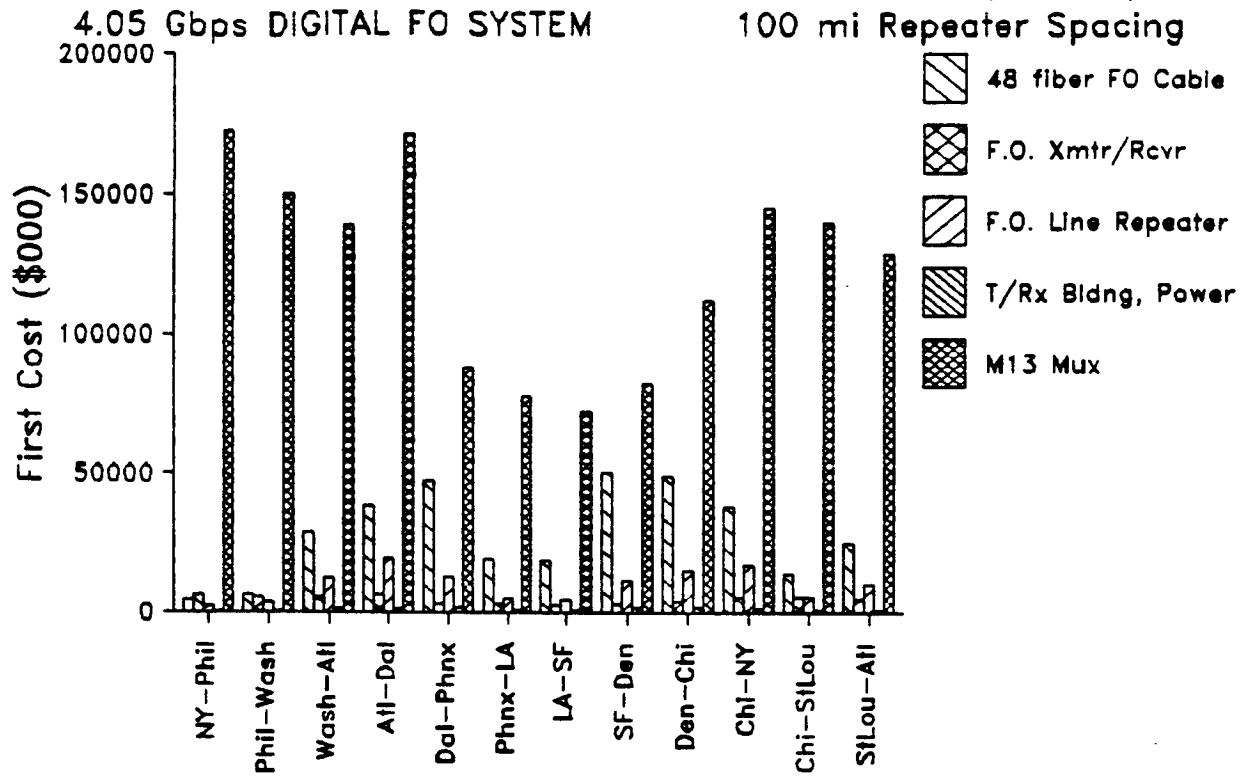


FIGURE 6.8: 11 NODE NETWORK 1995 TRAFFIC, 96f FO CABLE

Traffic Factor Mileage Factor	11 NODE NETWORK												Total
Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4		
Actual Traffic	1325137	1155506	1066805	1313372	671105	589566	548026	627868	854473	1070078	982832		
UF Ccts Req'd	1766849	1540674	1426073	1751162	894807	786088	730702	837157	1139298	1426771	1310443		
Initial Fill	6												
Total VF Circuits	2209561	1925843	1781342	2188993	1118509	982610	913377	1046447	1424122	1783463	1638054		16857328
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	534.66		7315.088
Circuit Miles (000)	210934	274204	1109347	1810791	1140562	404800	367949	1137491	1501726	533112	875799		10875989
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing													
First Cost (\$000)	10324	7695	33559	69421	55114	22266	21773	58750	56993	44198	28897		445237
96 fiber FO Cable	692	516	2256	5993	3693	1492	1459	3937	3819	2961	1937		29837
96f Ca Splicing	1513	2255	9855	13103	16152	6526	6381	17218	16703	12950	8469		115871
Cable Installation	6300	5544	5166	6300	3276	2898	2646	3024	4158	5166	4662		54588
F.O. Mtrr/Rcvr	2100	3696	12084	18900	12012	4830	4410	11088	15246	16254	9324		115080
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	1200		15600
T/RM Bldg, Power	172568	150465	139178	171045	87413	76808	71400	81795	111300	139338	127995		14735570
M13 Num	193946	170771	203527	306412	179610	115869	109119	177763	210170	172391	182484		2249763
GRAND TOTAL - FC	2031	1199	327	370	176	281	271	164	199	577	341		308
\$ per mile (000)	.92	.62	.18	.17	.16	.29	.30	.16	.14	.32	.21		.21
\$/cct-mi													
Annual Cost (\$000)	4162	3103	13570	36051	22220	8977	8778	23686	22978	17815	11650		179503
96 fiber FO Cable	279	208	909	2416	1489	602	588	1587	1540	1194	781		12029
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414		46715
Cable Installation	3952	3477	3240	3952	2055	1818	1660	1897	2608	3398	2924		34221
F.O. Mtrr/Rcvr	1317	2318	7561	11825	7534	3030	2766	6955	9563	10198	5848		72183
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	479		6232
T/RM Bldg, Power	108241	94378	87298	107286	54829	48177	44785	51305	69812	90492	80284		924282
M13 Num	118741	104633	117094	167502	95418	65653	61569	93151	114013	128974	105381		1275164
GRAND TOTAL - AC	1243	735	188	202	94	159	153	86	108	345	197		174
\$ per mile (000)	.56	.38	.11	.09	.08	.16	.17	.08	.08	.19	.12		.12
\$/cct-mi													
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing													
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44198	28897		395364
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	2961	1937		26495
96f Ca Splicing	1513	2255	9855	13103	16152	6526	6381	17218	16703	12950	8469		115871
Cable Installation	6615	5670	5355	6615	3465	3150	2835	3150	4095	5670	5040		57015
F.O. Mtrr/Rcvr	2205	3780	12495	19845	12705	5280	4725	11550	15015	17010	10080		120015
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	1200		15600
T/RM Bldg, Power	172568	150465	139178	171045	87413	76808	71400	81795	111300	139338	127995		14735570
M13 Num	188858	170981	204157	259965	180492	116541	109623	176351	209876	172769	183618		22039330
GRAND TOTAL - FC	1977	1201	328	314	177	283	272	164	199	578	343		301
\$ per mile (000)	.90	.62	.18	.14	.16	.29	.30	.16	.14	.32	.21		.20
\$/cct-mi													
Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	17815	11650		159396
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	1194	781		10682
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414		46715
Cable Installation	4149	3556	3359	4149	2173	1976	1778	1976	2569	3556	3151		35762
F.O. Mtrr/Rcvr	1385	2371	7837	12448	7969	3293	2964	7245	9418	10649	6323		75278
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	479		6232
T/RM Bldg, Power	108241	94378	87298	107286	54829	48177	44785	51305	69812	90492	80284		924282
M13 Num	116784	104764	117490	149059	95971	66074	61885	93519	113829	129607	106032		1258346
GRAND TOTAL - AC	1223	736	189	180	94	160	154	86	108	345	198		172
\$ per mile (000)	.55	.38	.11	.08	.08	.16	.17	.08	.08	.19	.12		.12
\$/cct-mi													

EXHIBIT 6.8A: 11 NODE NETWORK (1995)

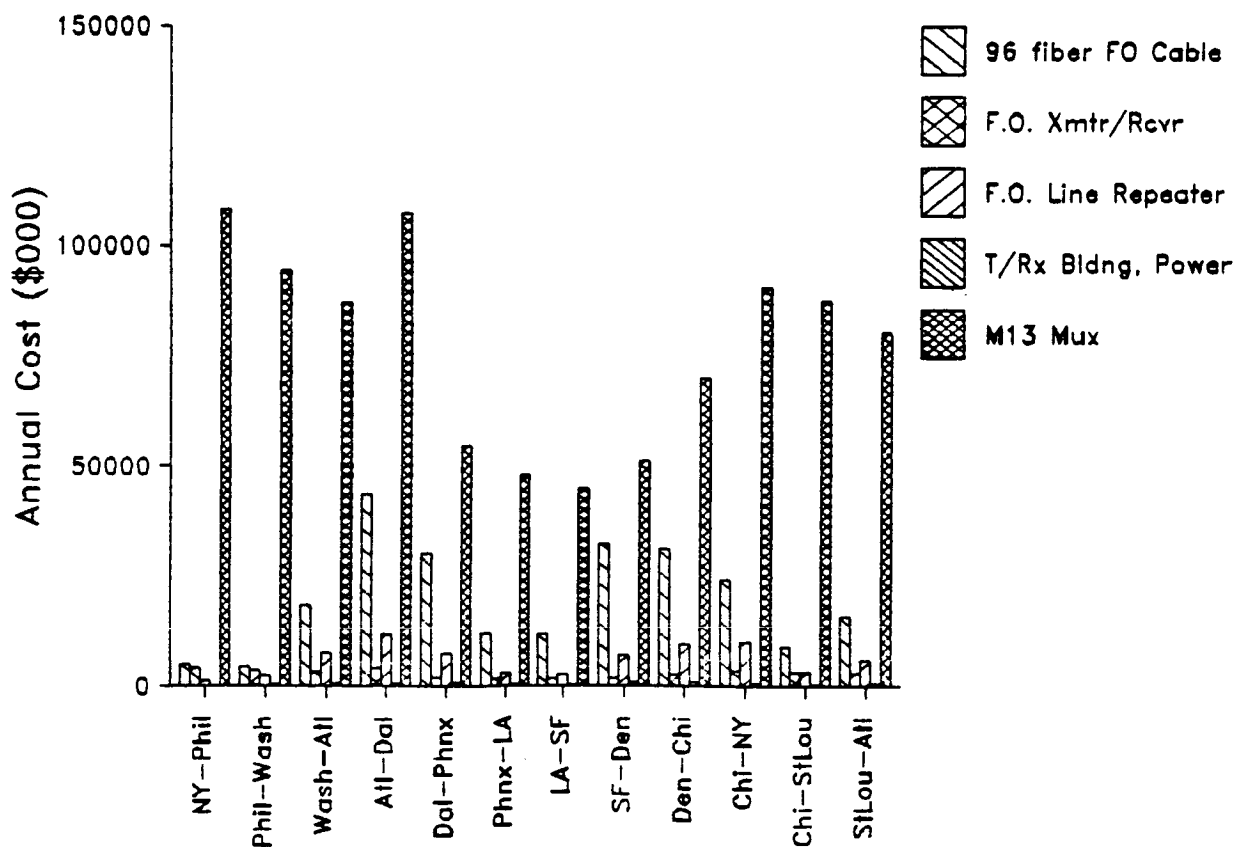
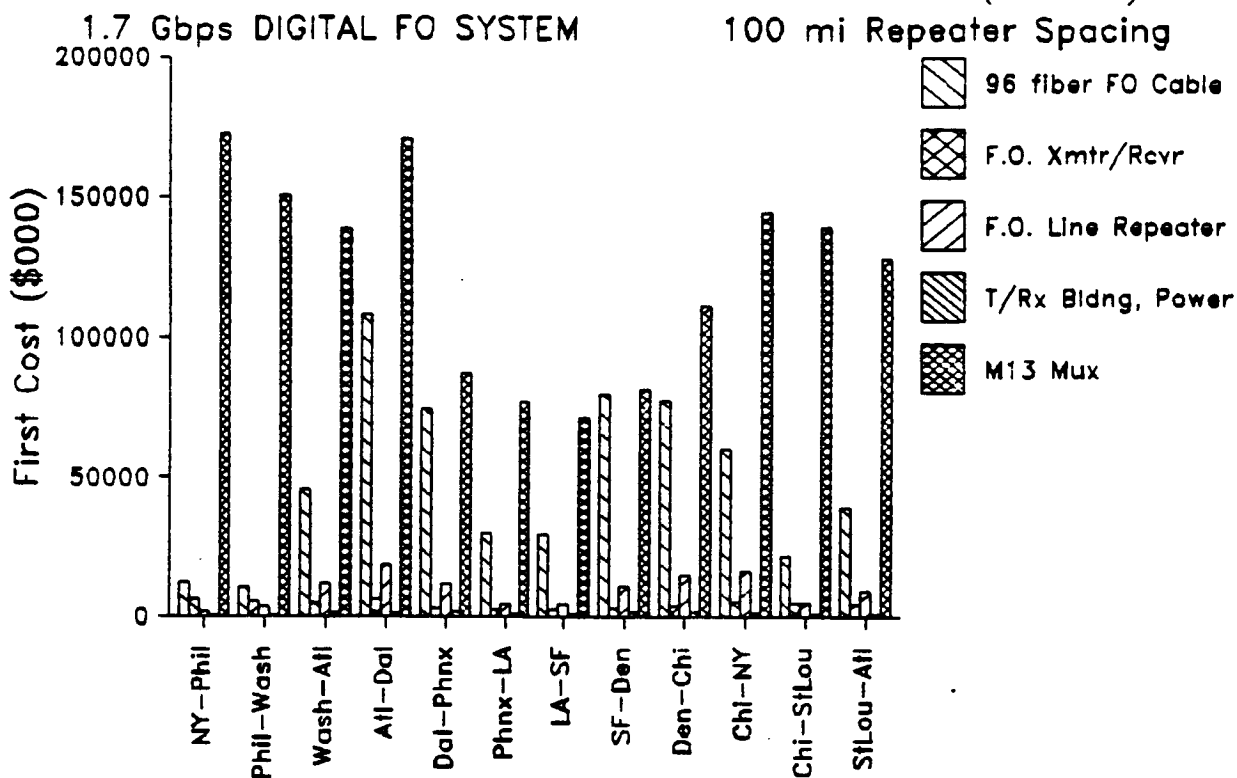


EXHIBIT 6.8B: 11 NODE NETWORK (1995)

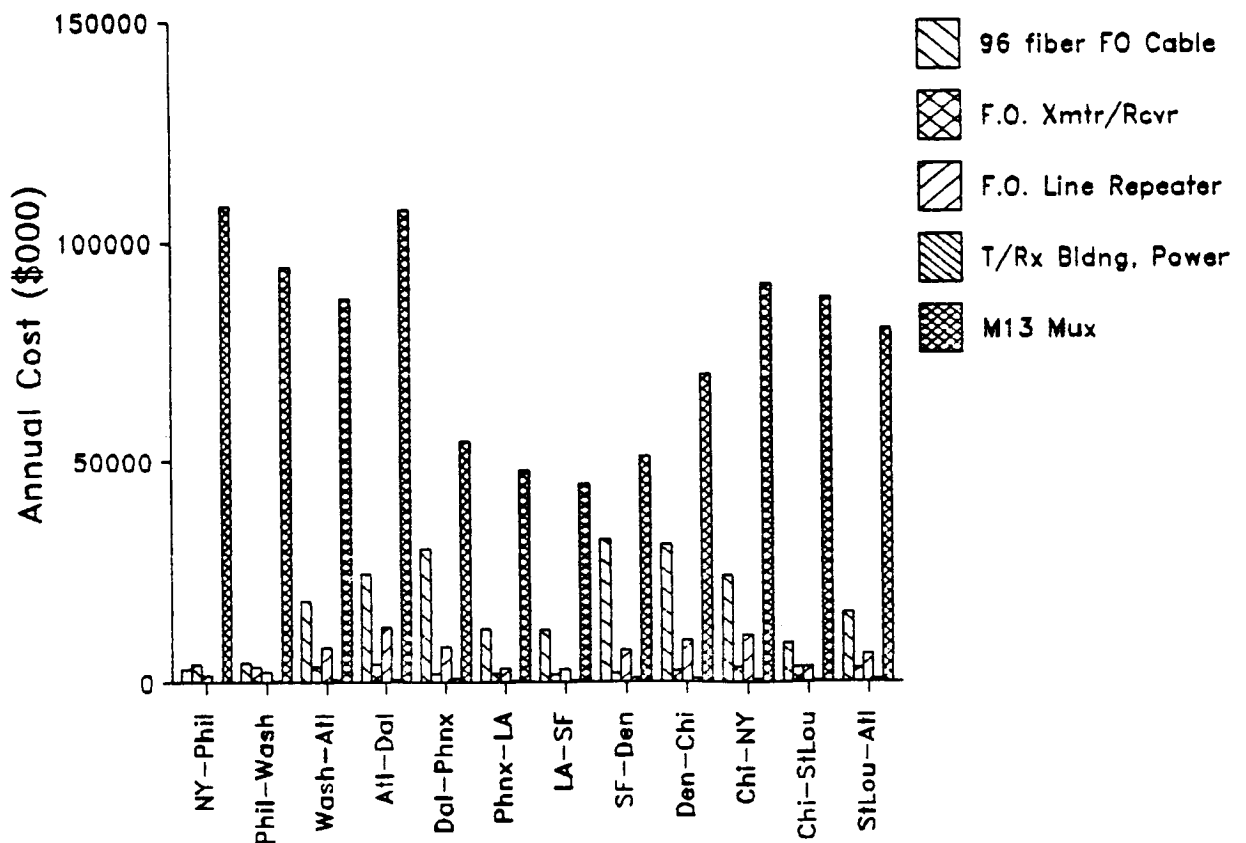
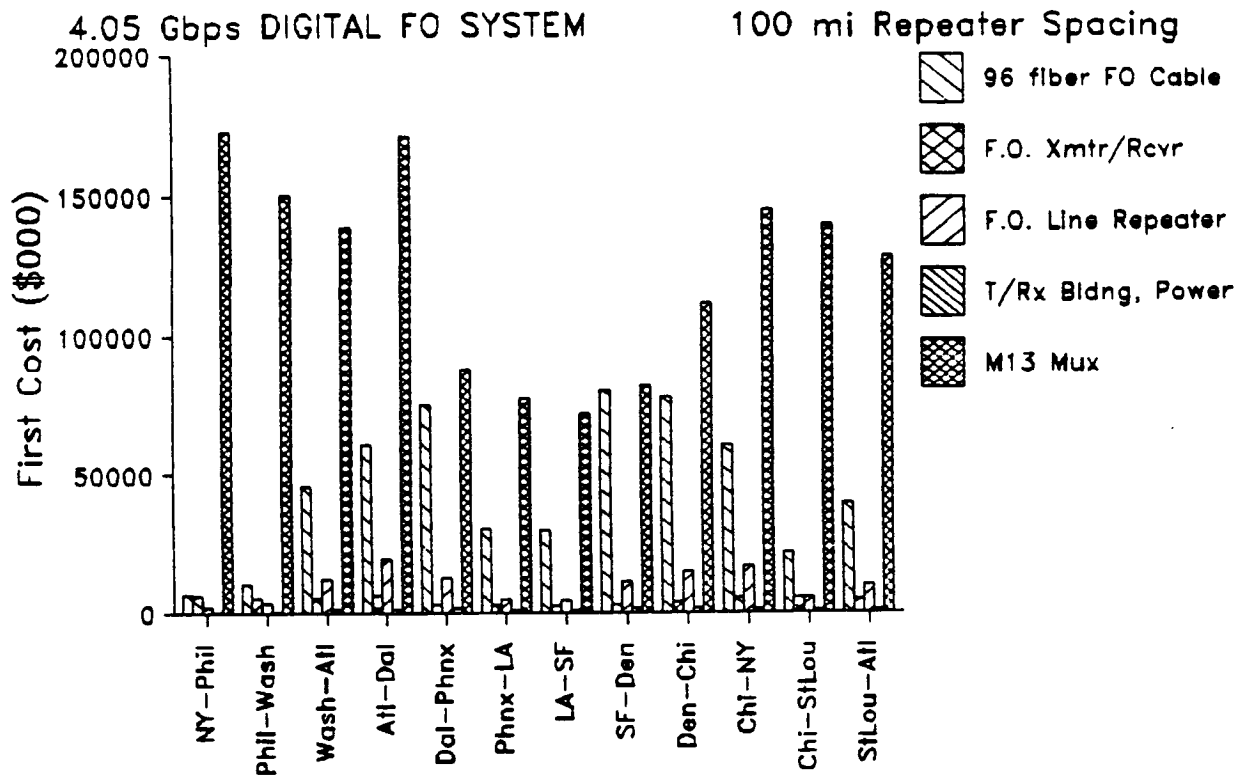


FIGURE 6.9: 11 NODE NETWORK 1.3 M 1995 TRAFFIC, 48f FO CABLE

Traffic Factor		Route											Total	
Mileage Factor		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4		
2.5415														
1.15														
Actual Traffic		1722678	1502157	1389446	1707383	872437	766436	712434	816228	1110815	1439917	1391101	1277682	
VF Ccts Req'd		2296904	2002877	1852595	2276511	1163249	1021914	949912	1088305	1481087	1919889	1854802	1703576	
Initial Fill		8	8	8	8	8	8	8	8	8	8	8	8	
Total VF Circuits		2871130	2503596	2318744	2845638	1454062	1277393	1187390	1360381	1851359	2399861	2318502	2129470	
System Mileage		95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	298.92	534.66	
Circuit Miles<000>		274214	356466	1442152	2354029	1482731	526241	478334	1478738	1952244	1962053	693046	1138538	
1.7 Gbps DIGITAL FO SYSTEM		100 mi Repeater Spacing												
First Cost (\$000)		8183	12199	53358	70878	58246	23531	23011	62090	60233	70049	25611	45809	
48 fiber FO Cable		554	825	3610	4795	3940	1592	1557	4200	4078	4739	1733	3099	
48f Ca Splicing		1513	2255	9855	13103	16152	6526	6381	17218	16703	12950	4735	8469	
Cable Installation		8190	7182	6552	8064	4284	3780	3528	4032	5418	6930	6552	6174	
F.O. Mtr/Rcvr		2730	4788	15288	24192	15708	6300	5880	14784	19866	20790	6552	12348	
F.O. Line Repeater		450	600	1350	1650	1950	1050	1050	1950	1950	1650	750	1200	
T/RM Bldg, Power		224333	195615	180968	222338	113610	99803	92768	106313	144638	187830	181178	166373	
M13 Run		245952	223465	270990	345020	213891	142581	134174	210586	252882	304638	227110	243472	
GRAND TOTAL - FC		2575	1569	435	417	210	346	333	194	240	373	760	455	
\$ per mile <000>		.90	.63	.19	.15	.14	.27	.28	.14	.13	.16	.33	.21	
\$/cct-mi														
Annual Cost (\$000)		3299	4918	21512	28575	23483	9487	9277	25032	24284	28241	10326	18469	
48 fiber FO Cable		223	333	1455	1933	1589	642	628	1693	1643	1910	698	1249	
48f Ca Splicing		610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414	
Cable Installation		5137	4505	4110	5058	2687	2371	2213	2529	3398	4347	4110	3873	
F.O. Mtr/Rcvr		1712	3003	9589	15174	9853	3952	3688	9273	12461	13040	4110	7745	
F.O. Line Repeater		180	240	539	659	779	419	419	779	779	659	300	479	
T/RM Bldg, Power		140710	122597	113510	139489	71261	62600	58187	66683	90722	117626	113642	104355	
M13 Run		151872	136505	154692	196142	116163	82102	76985	112932	140021	171045	135094	139585	
GRAND TOTAL - AC		1590	959	248	237	114	199	191	104	133	209	452	261	
\$ per mile <000>		.55	.38	.11	.08	.08	.16	.16	.08	.07	.09	.19	.11	
\$/cct-mi														
4.05 Gbps DIGITAL FO SYSTEM		100 mi Repeater Spacing												
First Cost (\$000)		5455	4066	17786	47282	29123	11766	11505	31045	30116	23350	8537	15270	
48 fiber FO Cable		369	275	1203	3196	1970	796	778	2100	2037	1580	578	1033	
48f Ca Splicing		1513	2255	9855	13103	16152	6526	6381	17218	16703	12950	4735	8469	
Cable Installation		8190	7245	6930	8190	4725	3780	3465	4095	5670	6930	6930	72450	
F.O. Mtr/Rcvr		2730	4830	16170	24570	17325	6300	5775	15015	20790	20790	6930	12600	
F.O. Line Repeater		450	600	1350	1650	1950	1050	1050	1950	1950	1650	750	1200	
T/RM Bldg, Power		224333	195615	180968	222338	113610	99803	92768	106313	144638	187830	181178	166373	
M13 Run		245952	214887	234271	320299	184856	130020	121722	177736	221904	254780	209637	211244	
GRAND TOTAL - FC		2645	1509	376	387	181	316	302	164	210	312	701	395	
\$ per mile <000>		.89	.60	.16	.14	.12	.25	.25	.12	.11	.13	.30	.19	
\$/cct-mi														
Annual Cost (\$000)		2199	1539	7171	19050	11741	4743	4638	12516	12142	9414	3442	6156	
48 fiber FO Cable		149	111	485	1289	794	321	314	847	821	637	233	416	
48f Ca Splicing		610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414	
Cable Installation		5137	4544	4347	5137	2964	2371	2173	2569	3556	4347	4347	3952	
F.O. Mtr/Rcvr		1712	3030	10142	15411	10867	3952	3622	9418	13040	13040	4347	7903	
F.O. Line Repeater		180	240	539	659	779	419	419	779	779	659	300	479	
T/RM Bldg, Power		140710	122597	113510	139489	71261	62600	58187	66683	90722	117626	113642	104355	
M13 Run		150698	133171	140171	186288	104918	77037	71927	99753	127795	150944	128216	126677	
GRAND TOTAL - AC		1578	935	225	225	103	187	179	92	121	185	429	237	
\$ per mile <000>		.55	.37	.10	.08	.07	.15	.15	.07	.07	.08	.19	.11	
\$/cct-mi														

EXHIBIT 6.9A: 11 NODE NETWORK (1995+30%)

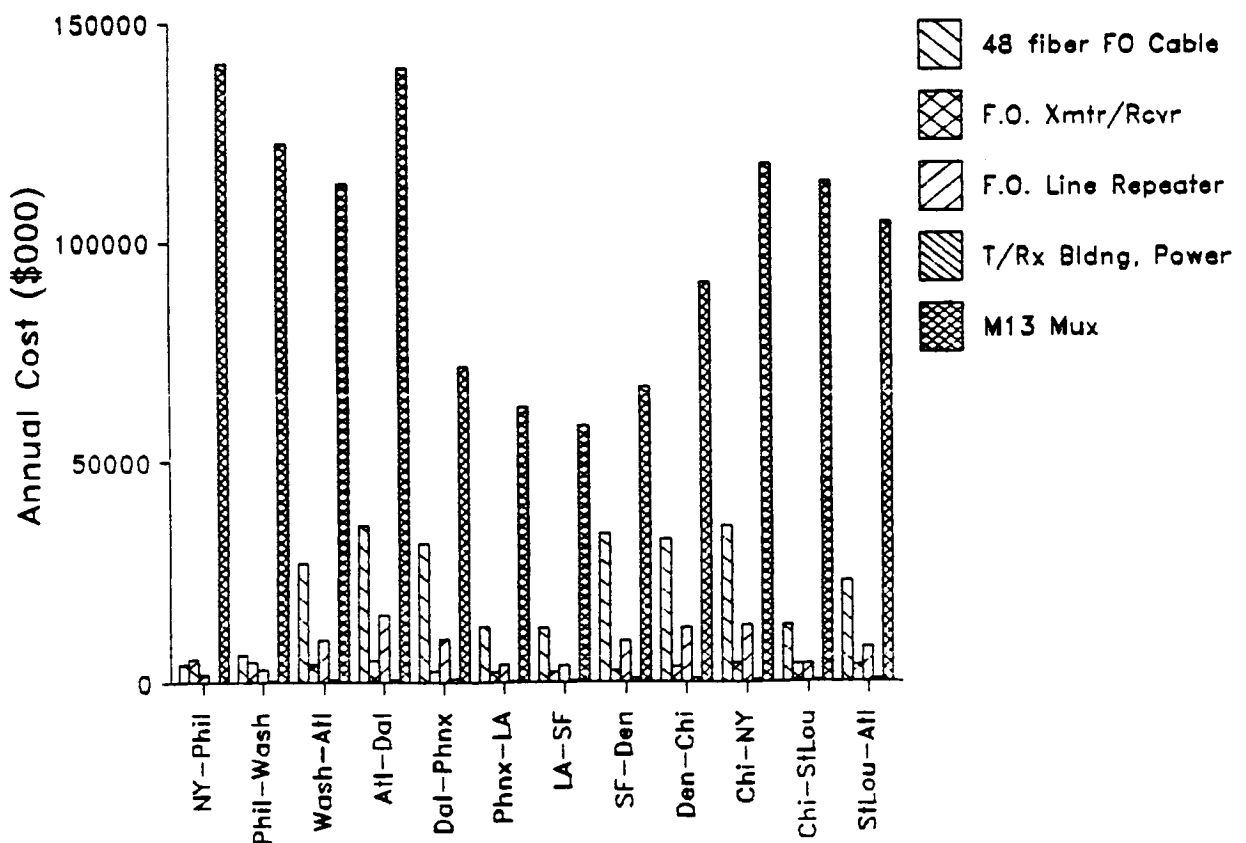
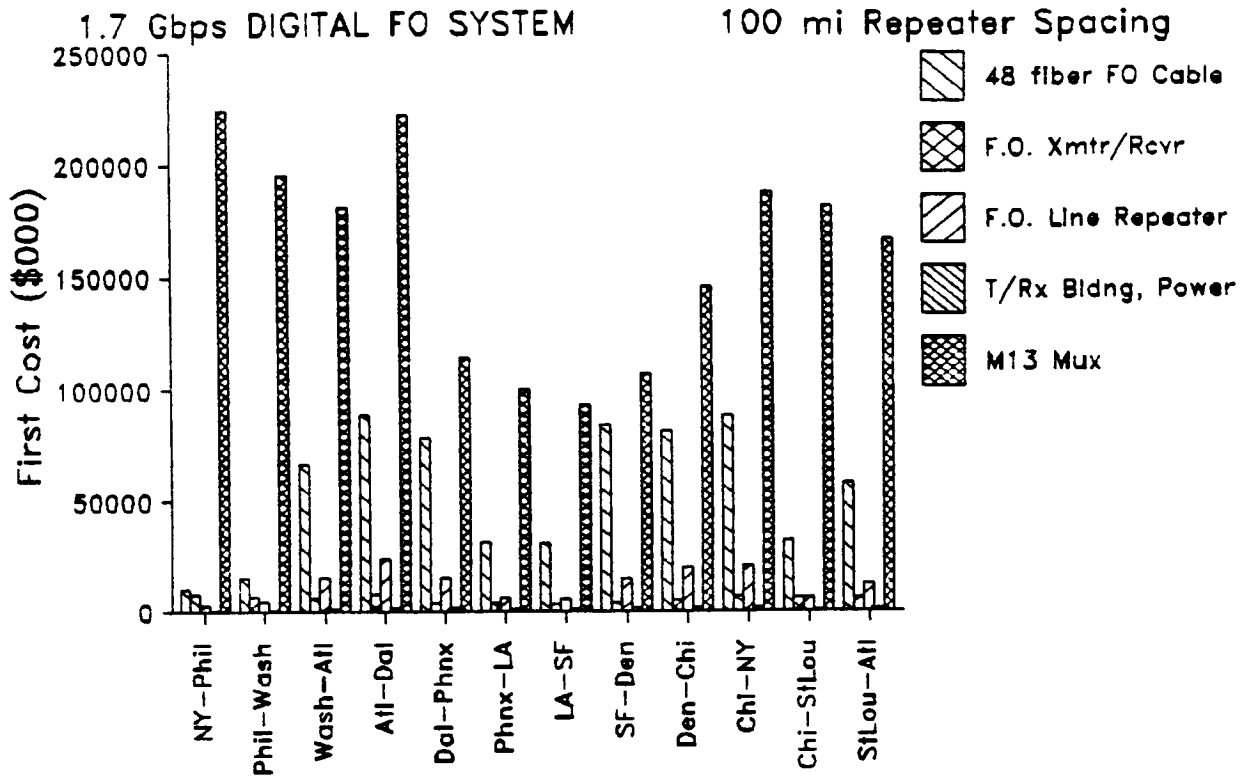


EXHIBIT 6.9B: 11 NODE NETWORK (1995+30%)

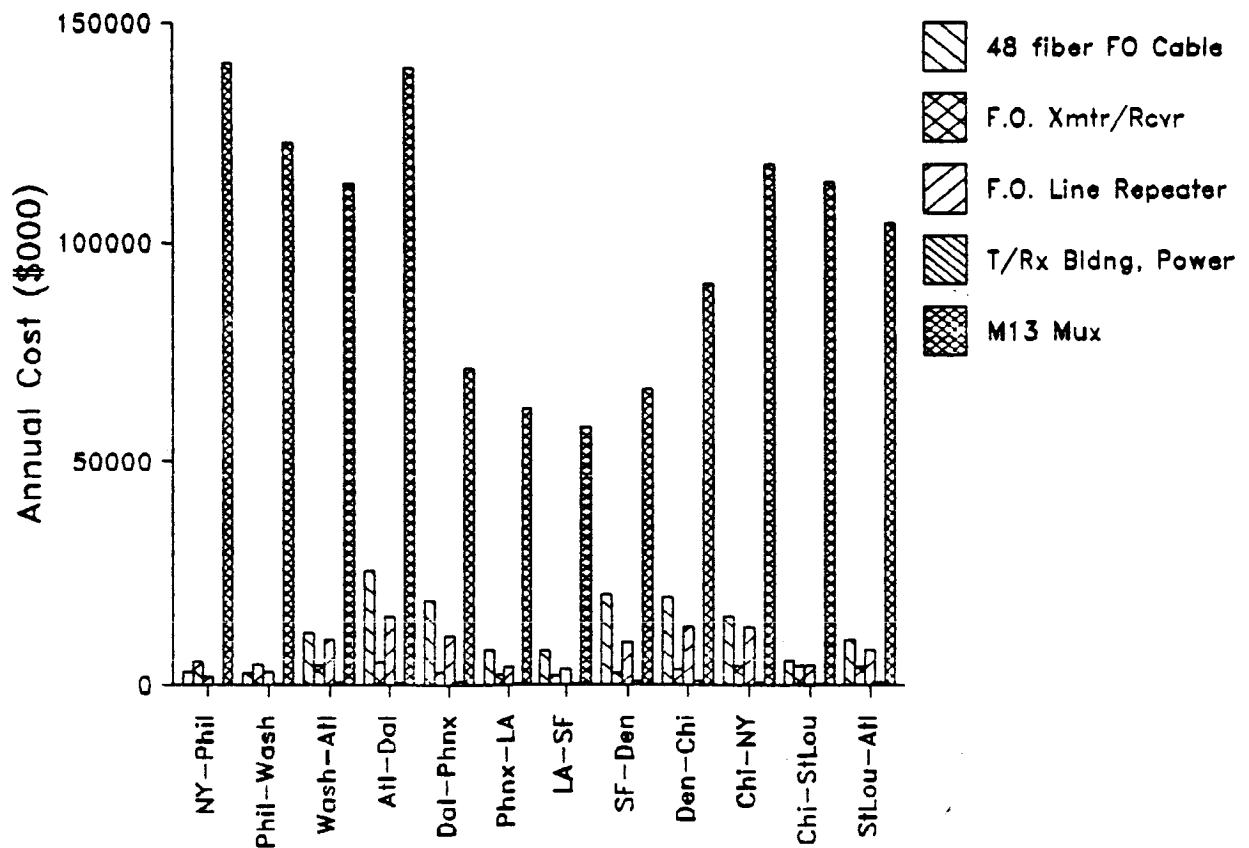
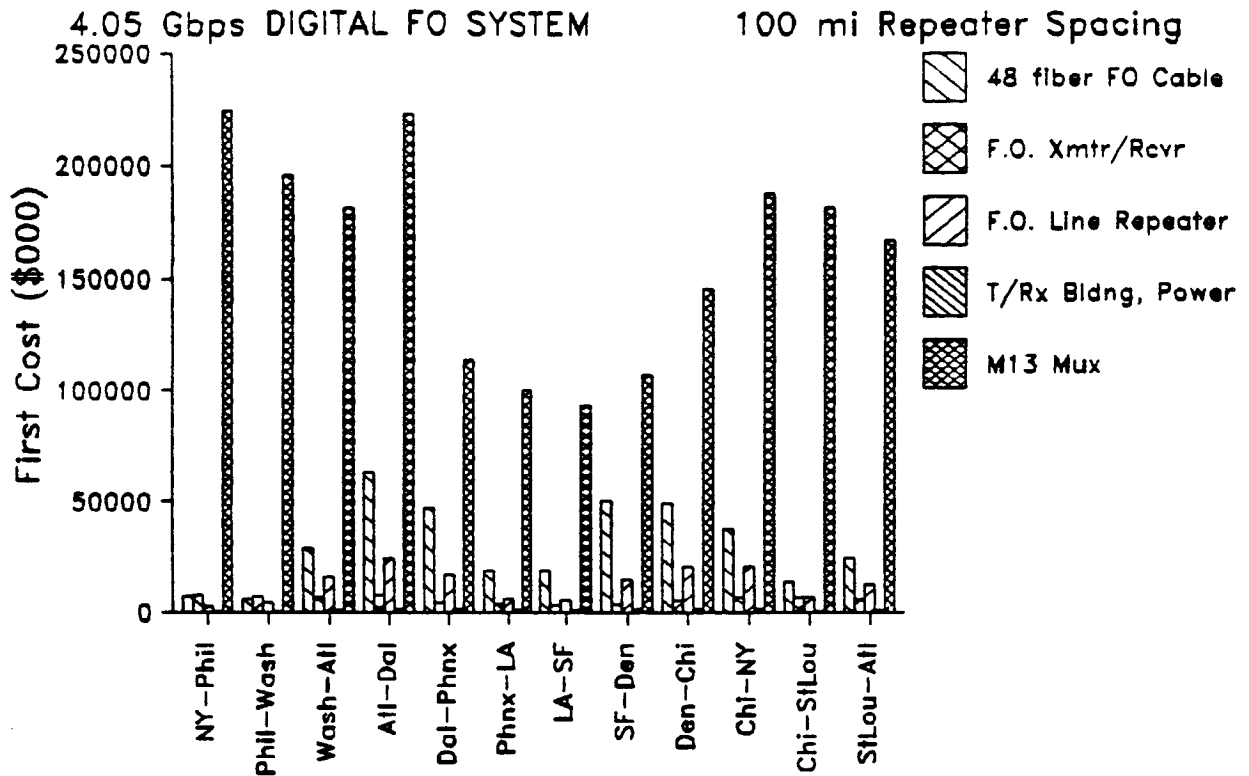


FIGURE 6.10: 11 NODE NETWORK 1.3 M 1995 TRAFFIC, 96f FO CABLE

Traffic Factor Mileage Factor	11 NODE NETWORK												
Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4	Total	
Actual Traffic	1722678	1502157	1389446	1707303	872437	766436	712434	816228	1110815	1439917	1391101	1277682	
VF Ccts Req'd	2296904	2002877	1852595	2276511	1163249	1021914	949912	1086305	1461087	1919869	1854802	1703576	
Initial Fill	2871130	2503596	2315744	2845638	1454062	1277393	1187390	1360381	1851359	2399861	2318502	24514526	
Total VF Circuits	95.51	142.38	622.76	927.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	534.66	7315.068	
System Mileage	274214	356466	1442152	2354029	1482731	526241	478334	1478738	1952244	1962053	693046	1138638	
Circuit Miles(000)												14138785	
1.7 Gbps DIGITAL FO SYSTEM													
100 mi Repeater Spacing													
First Cost (\$000)	10324	15391	67318	89421	55114	22266	21773	58750	56993	88376	32312	57794	575832
96 fiber FO Cable	692	1031	4511	5993	3693	1492	1459	3937	3819	5922	2165	3873	38589
96f Ca Splicing	1513	2255	9855	13103	16152	6526	6381	17218	16703	12950	4735	8469	115871
Cable Installation	8190	7182	6552	8064	4284	3780	3528	4032	5418	6930	6552	6174	70686
F.O. Mtr/Rcvr	2730	4788	15288	24192	15708	6300	5880	14784	19866	20790	6552	12348	149226
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	750	1200	15600
T/Rx Bldng, Power	224333	195615	180968	222338	113610	99803	92768	106313	144638	187530	181178	166373	1915463
M13 Num	248231	226863	285851	364761	210511	141216	132839	206984	249387	324149	234424	256231	2881267
GRAND TOTAL - FC	2599	1593	459	441	206	343	330	190	236	396	784	479	394
\$ per mile (000)													
\$/cct-mi	.91	.64	.20	.15	.14	.27	.28	.14	.13	.17	.34	.23	.20
Annual Cost (\$000)	4162	6205	27140	36051	22220	8977	8778	23606	22978	35630	13027	23301	232154
96 fiber FO Cable	279	416	1819	2416	1489	602	588	1587	1540	2388	873	1561	15558
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414	46715
Cable Installation	5137	4505	4110	5058	2687	2371	2213	2529	3398	4347	4110	3873	44337
F.O. Mtr/Rcvr	1712	3003	9589	15174	9853	3952	3688	9273	12461	13040	4110	7746	93600
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	300	479	6232
T/Rx Bldng, Power	140710	122697	113510	139459	71261	62600	58187	66683	90722	117626	113642	104355	1201454
M13 Num	152791	137975	160684	204101	114800	81551	76447	111479	138612	178911	137970	144729	1640050
GRAND TOTAL - AC	1600	969	256	247	113	196	190	103	131	219	462	271	224
\$ per mile (000)													
\$/cct-mi	.56	.39	.11	.09	.08	.15	.16	.08	.07	.09	.20	.13	.12
4.05 Gbps DIGITAL FO SYSTEM													
100 mi Repeater Spacing													
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	16156	28897	395364
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	5922	2165	3873	26495
96f Ca Splicing	1513	2255	9855	13103	16152	6526	6381	17218	16703	12950	4735	8469	115871
Cable Installation	8190	7245	6930	8190	4725	3780	3461	4095	5670	6930	6300	6300	72450
F.O. Mtr/Rcvr	2730	4830	16170	24570	17325	6300	5775	15015	20790	20790	6930	12600	153825
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	750	1200	15600
T/Rx Bldng, Power	224333	195615	180968	222338	113610	99803	92768	106313	144638	187530	181178	166373	1915463
M13 Num	242723	218756	251197	317558	212569	141216	132671	207278	250563	277000	217761	225775	2695067
GRAND TOTAL - FC	2541	1536	403	384	208	343	329	191	238	339	728	422	368
\$ per mile (000)													
\$/cct-mi	.89	.61	.17	.13	.14	.27	.28	.14	.13	.14	.31	.20	.19
Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	17816	6514	11650	159396
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	2388	873	1561	15558
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414	46715
Cable Installation	5137	4544	4347	5137	2964	2371	2173	2569	3556	4347	4347	3952	45444
F.O. Mtr/Rcvr	1712	3030	10142	15411	10867	3952	3622	9418	13040	13040	4347	7903	96485
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	300	479	6232
T/Rx Bldng, Power	140710	122697	113510	139459	71261	62600	58187	66683	90722	117626	113642	104355	1201454
M13 Num	150570	134731	146995	185183	116091	81551	76342	111684	139350	159902	131494	132335	1566407
GRAND TOTAL - AC	1577	946	236	224	114	196	190	103	132	196	440	248	214
\$ per mile (000)													
\$/cct-mi	.55	.38	.10	.08	.08	.15	.16	.08	.07	.06	.19	.12	.11

EXHIBIT 6.10A: 11 NODE NETWORK (1995+30%)

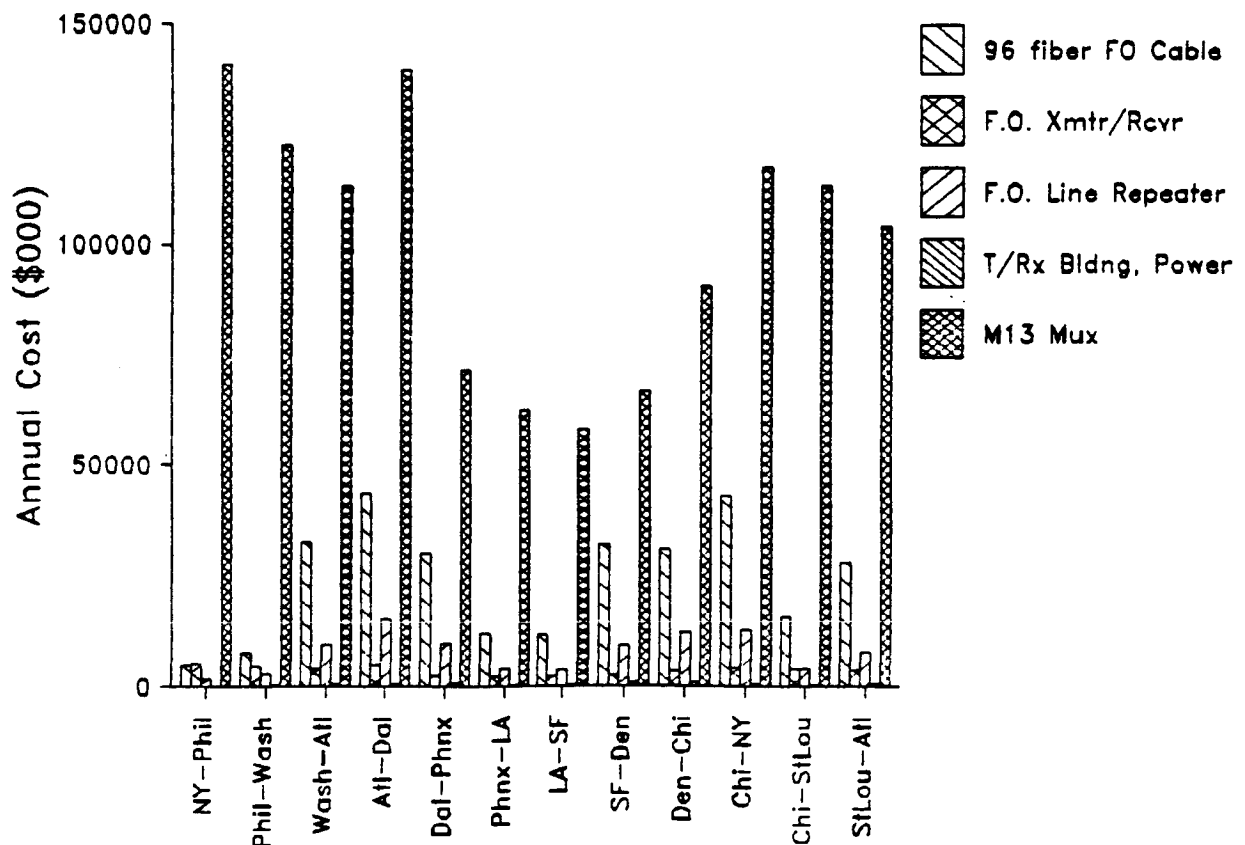
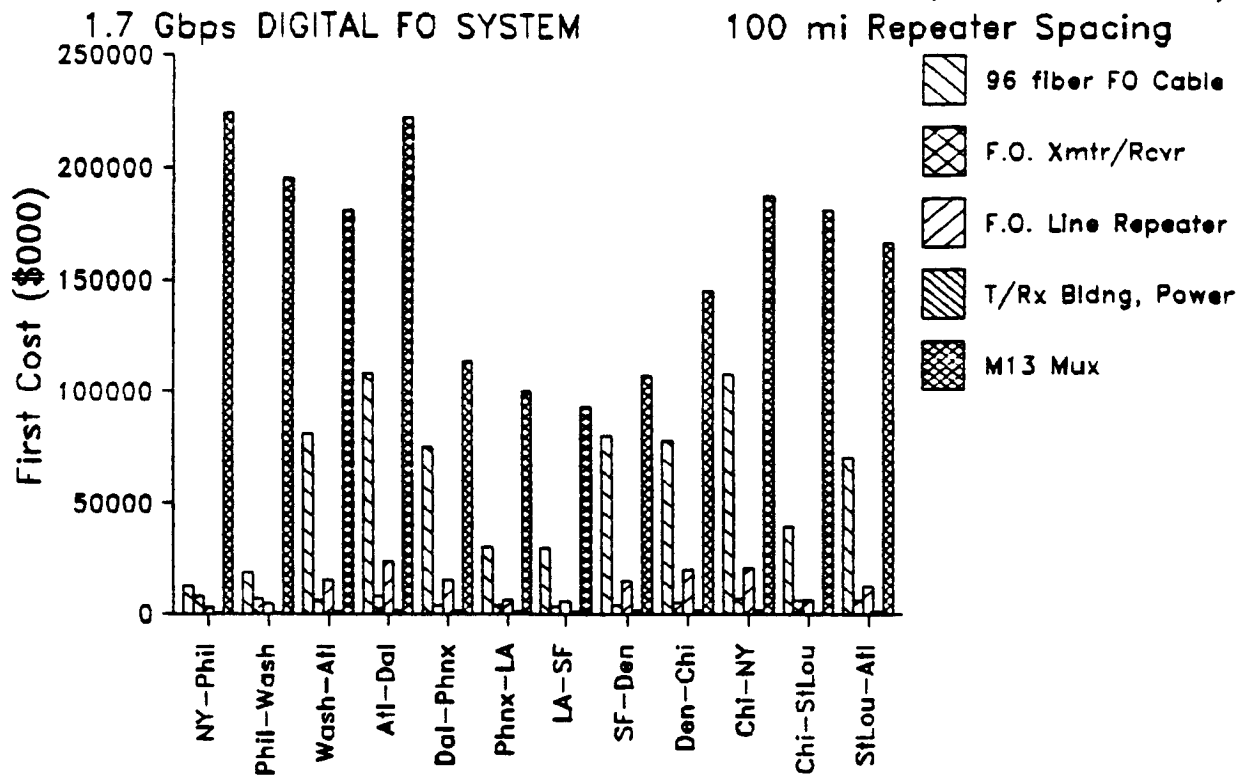


EXHIBIT 6.10B: 11 NODE NETWORK (1995+30%)

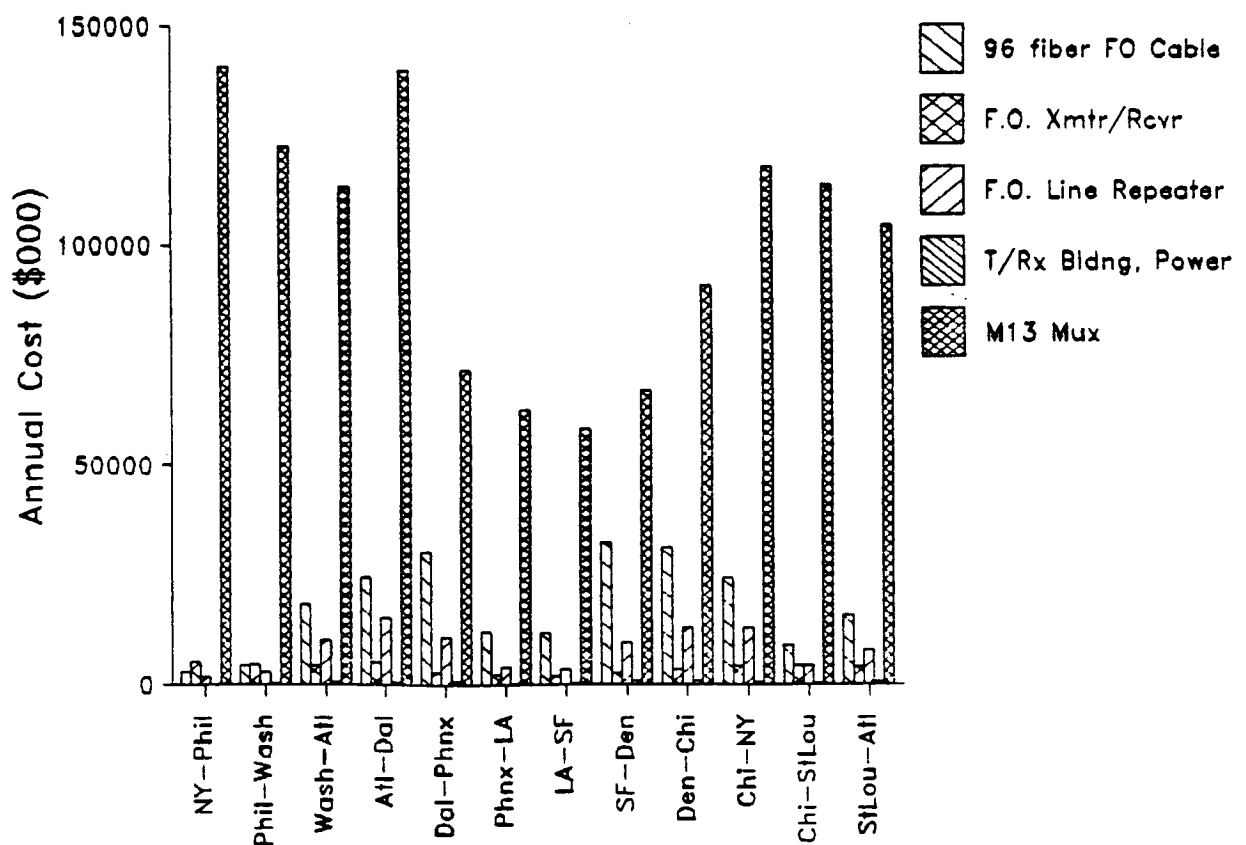
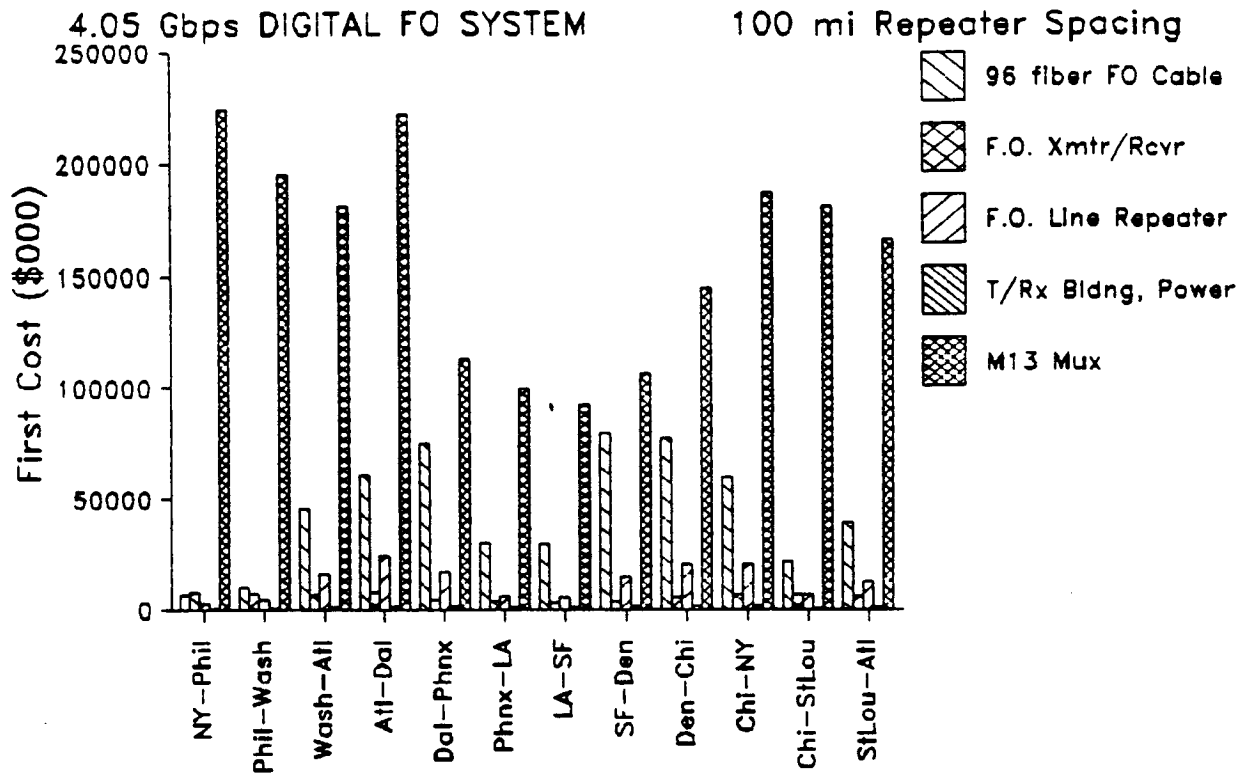


FIGURE 6.11: 11 NODE NETWORK .7 X 1995 TRAFFIC, 48f FO CABLE

Traffic Factor Mileage Factor		1.3685 1.15													
Route		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-1	10-11	11-4	Total	
Actual Traffic		927596	808854	748163	919360	469774	412696	383618	439508	596131	775340	749055	687983		
VF Ccts Req'd		1236794	1078472	997551	1225613	626365	550262	511491	586010	797509	1033786	998740	917310		
Initial Fill		-8													
Total VF Circuits		1545993	1348090	1246939	1532267	782956	687827	639364	732513	996886	1292233	1248424	1146638	13200130	
System Miles		95.61	142.38	622.76	827.24	1019.72	411.96	402.86	1087.00	1054.49	817.57	298.92	534.66	7315.06	
Circuit Miles(000)		147654	191943	776543	1267554	798393	283360	287565	796243	1051208	1056490	373178	613059	7613192	
1.7 Gbps DIGITAL FO SYSTEM															
100 mi Repeater Spacing															
First Cost (\$000)		5456	8133	35572	47252	29123	11766	11505	31045	30116	46700	17074	30540	304281	
48 fiber FO Cable		369	550	2406	3196	1970	796	778	2100	2037	3159	1155	2066	20584	
48f Ca Splicing		1513	2255	9655	13103	16152	6526	6381	17218	16703	12950	4735	8469	115871	
Cable Installation		4410	3906	3654	4410	2394	2142	2016	2268	2898	3780	3654	3276	38808	
F.O. Mtr/Rcvr		1470	2604	8526	13230	8778	3570	3360	6316	10626	11340	3654	6552	82026	
F.O. Line Repeater		450	600	1350	1650	1950	1050	1050	1950	1950	1650	750	1200	15600	
T/Rm Bldg, Power		120803	105368	97440	119753	61215	53760	49980	57278	77910	100958	97545	89618	1031625	
M13 Num		134470	123416	158813	202594	121583	79609	75071	120175	142241	180536	128567	141720	1608794	
GRAND TOTAL - FC		1408	867	255	245	119	193	186	111	136	221	430	265	220	
\$ per mile (000)		.91	.64	.20	.16	.15	.28	.29	.15	.14	.17	.34	.23	.21	
\$/cct-mi															
Annual Cost (\$000)															
48 fiber FO Cable		2199	3279	14341	19050	11741	4743	4638	12516	12142	18828	6884	12312	122675	
48f Ca Splicing		149	222	970	1289	794	321	314	847	821	1274	466	833	8299	
Cable Installation		610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414	46715	
F.O. Mtr/Rcvr		2766	2450	2292	2766	1502	1344	1265	1423	1818	2371	2292	2055	24342	
F.O. Line Repeater		922	1633	5348	8298	5506	2239	2108	5216	6665	7113	2292	4110	51450	
T/Rm Bldg, Power		180	240	539	659	779	419	419	779	779	659	300	479	6232	
M13 Num		75772	66091	61118	75114	38396	33720	31349	35927	48868	63326	61184	56212	647076	
GRAND TOTAL - RC		82598	74824	88586	112459	65231	45418	42666	63649	77827	98790	75326	79415	906788	
\$ per mile (000)		865	526	142	136	64	110	106	59	74	121	252	149	124	
\$/cct-mi		.56	.39	.11	.09	.08	.16	.17	.08	.07	.09	.20	.13	.12	
4.05 Gbps DIGITAL FO SYSTEM															
100 mi Repeater Spacing															
First Cost (\$000)		2728	4066	17786	23626	29123	11766	11505	31045	30116	23350	8537	15270	208918	
48 fiber FO Cable		185	275	1203	1598	1970	796	778	2100	2037	1980	578	1033	14133	
48f Ca Splicing		1513	2255	9655	13103	16152	6526	6381	17218	16703	12950	4735	8469	115871	
Cable Installation		4725	4095	3780	4725	2520	2205	2205	2520	3150	3780	3780	3465	40950	
F.O. Mtr/Rcvr		1575	2730	8820	14175	9240	3675	3675	9240	11950	11340	3780	6930	86730	
F.O. Line Repeater		450	600	1350	1650	1950	1050	1050	1950	1950	1650	750	1200	15600	
T/Rm Bldg, Power		120803	105368	97440	119753	61215	53760	49980	57278	77910	100958	97545	89618	1031625	
M13 Num		131978	119389	140244	178630	122171	79777	75578	121351	143417	155607	119705	125984	1513826	
GRAND TOTAL - FC		1382	839	225	216	120	194	188	112	136	190	400	236	207	
\$ per mile (000)		.89	.62	.18	.14	.15	.28	.29	.15	.14	.15	.32	.21	.20	
\$/cct-mi															
Annual Cost (\$000)															
48 fiber FO Cable		1100	1639	7171	9525	11741	4743	4638	12516	12142	9414	3442	6156	84228	
48f Ca Splicing		74	111	485	644	794	321	314	847	821	637	233	410	5698	
Cable Installation		610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414	46715	
F.O. Mtr/Rcvr		2964	2569	2371	2964	1581	1383	1383	1581	1976	2371	2371	2173	25685	
F.O. Line Repeater		988	1712	5532	8891	5796	2305	2305	5796	7245	7113	2371	4347	54400	
T/Rm Bldg, Power		180	240	539	659	779	419	419	779	779	659	300	479	6232	
M13 Num		75772	66091	61118	75114	38396	33720	31349	35927	48868	63326	61184	56212	647076	
GRAND TOTAL - RC		81688	73271	81193	103080	65599	45523	42982	64387	78565	88739	71809	73198	870034	
\$ per mile (000)		855	515	130	125	64	111	107	59	75	109	240	137	119	
\$/cct-mi		.55	.38	.10	.08	.08	.16	.17	.08	.07	.08	.19	.12	.11	

EXHIBIT 6.11A: 11 NODE NETWORK (1995-30%)

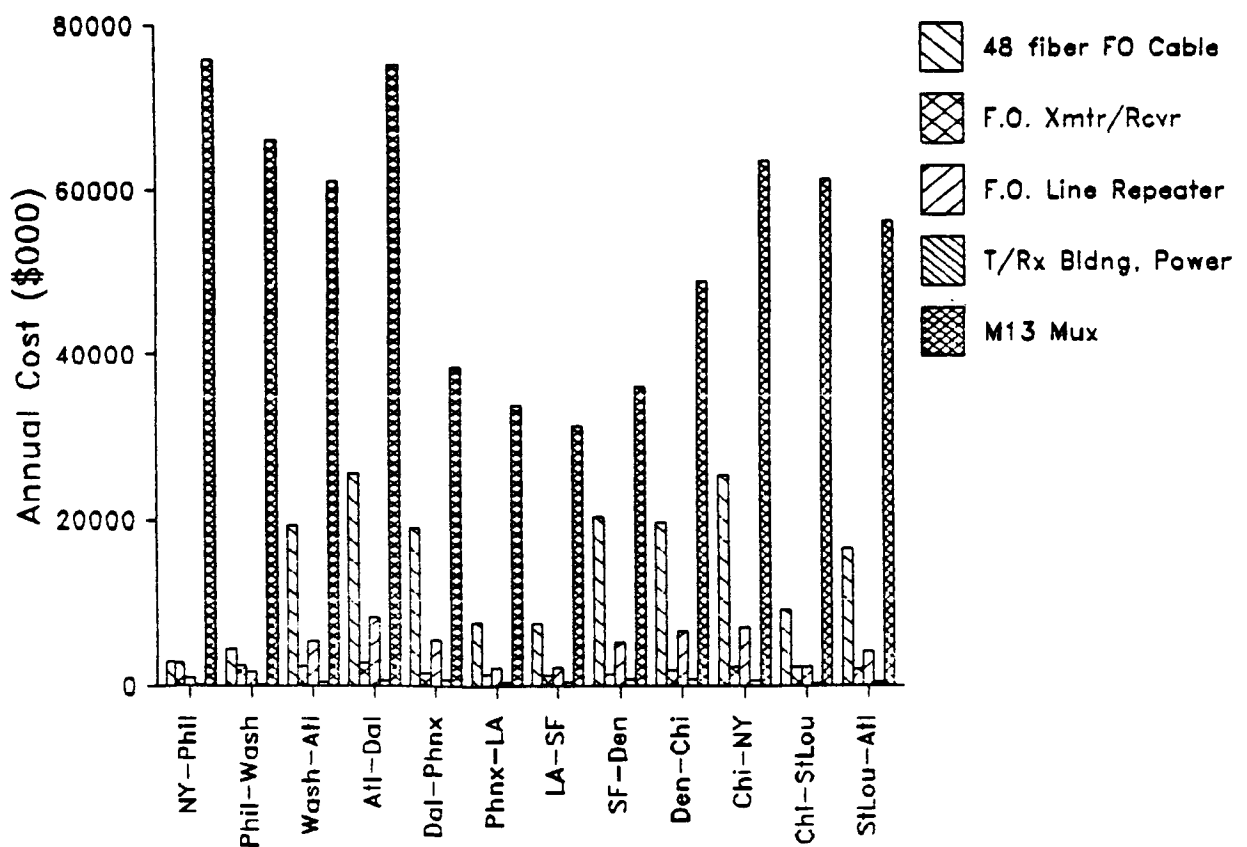
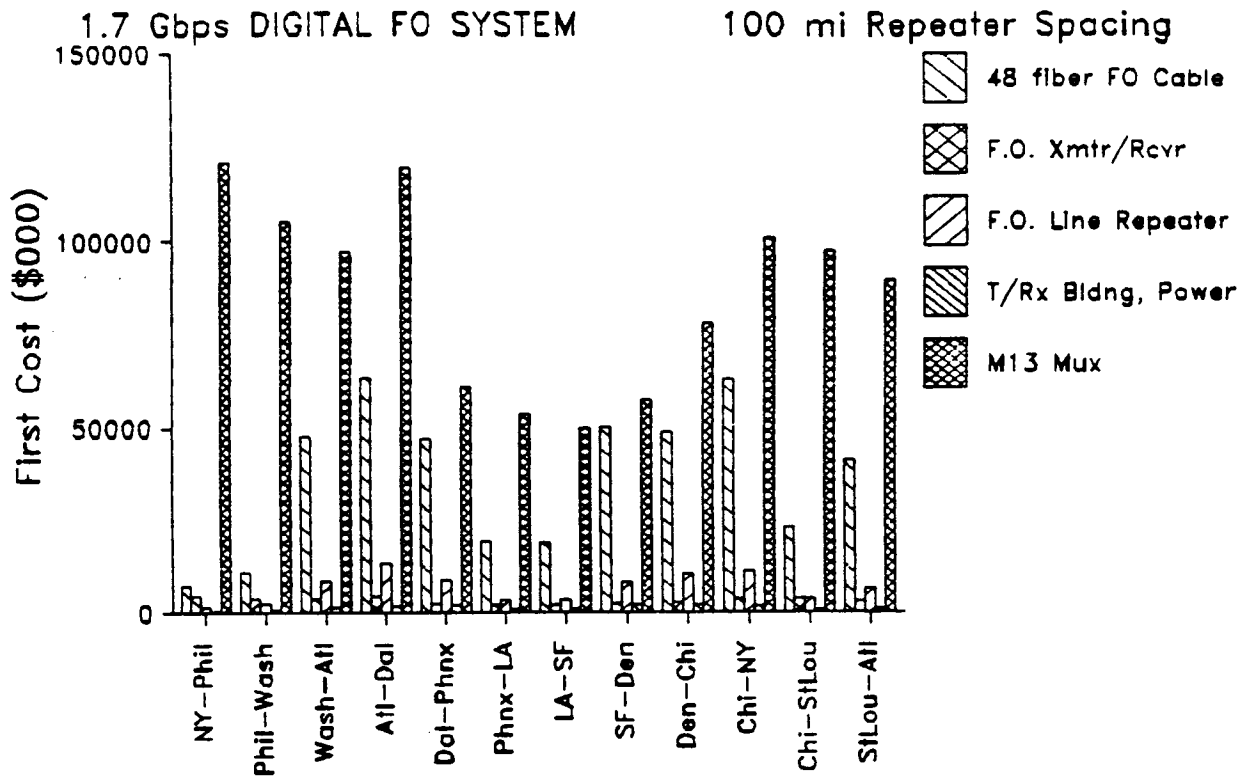


EXHIBIT 6.11B: 11 NODE NETWORK (1995-30%)

4.05 Gbps DIGITAL FO SYSTEM

100 mi Repeater Spacing

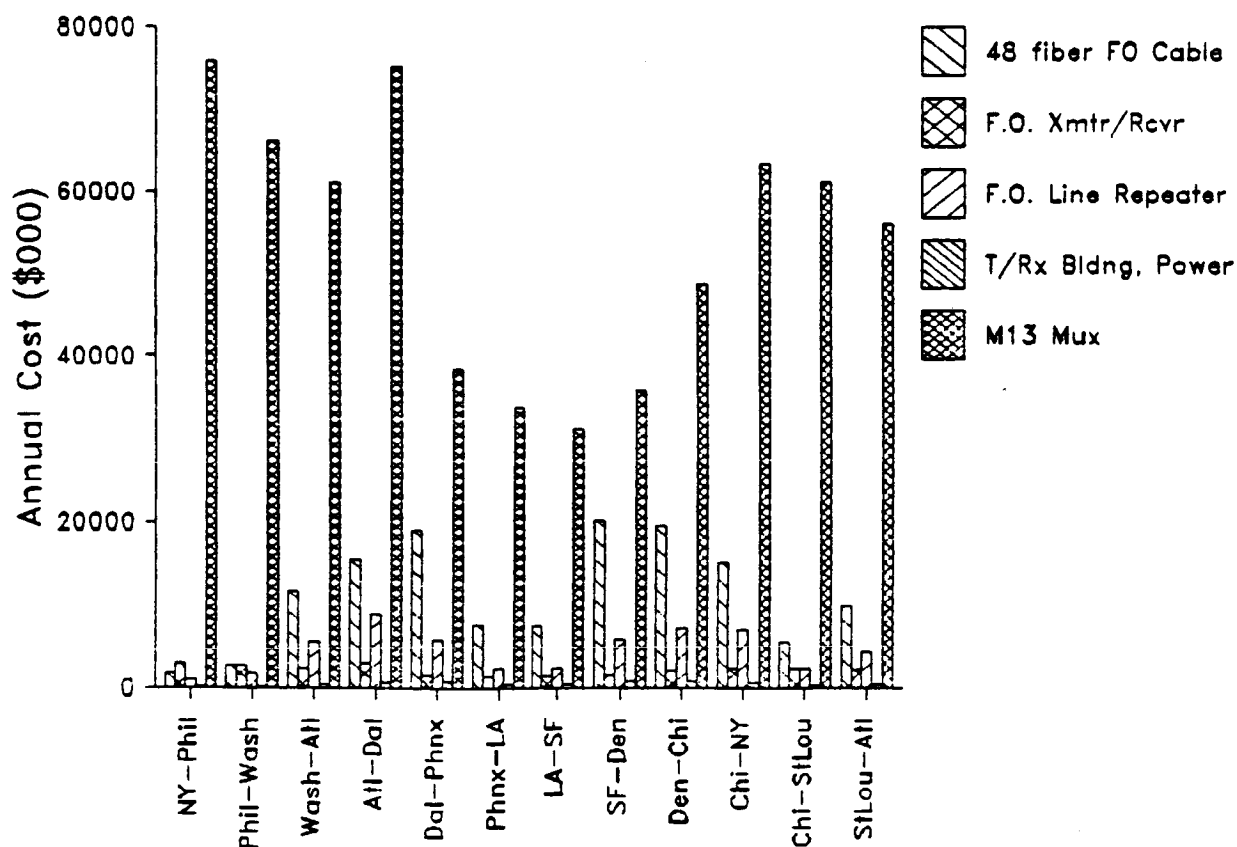
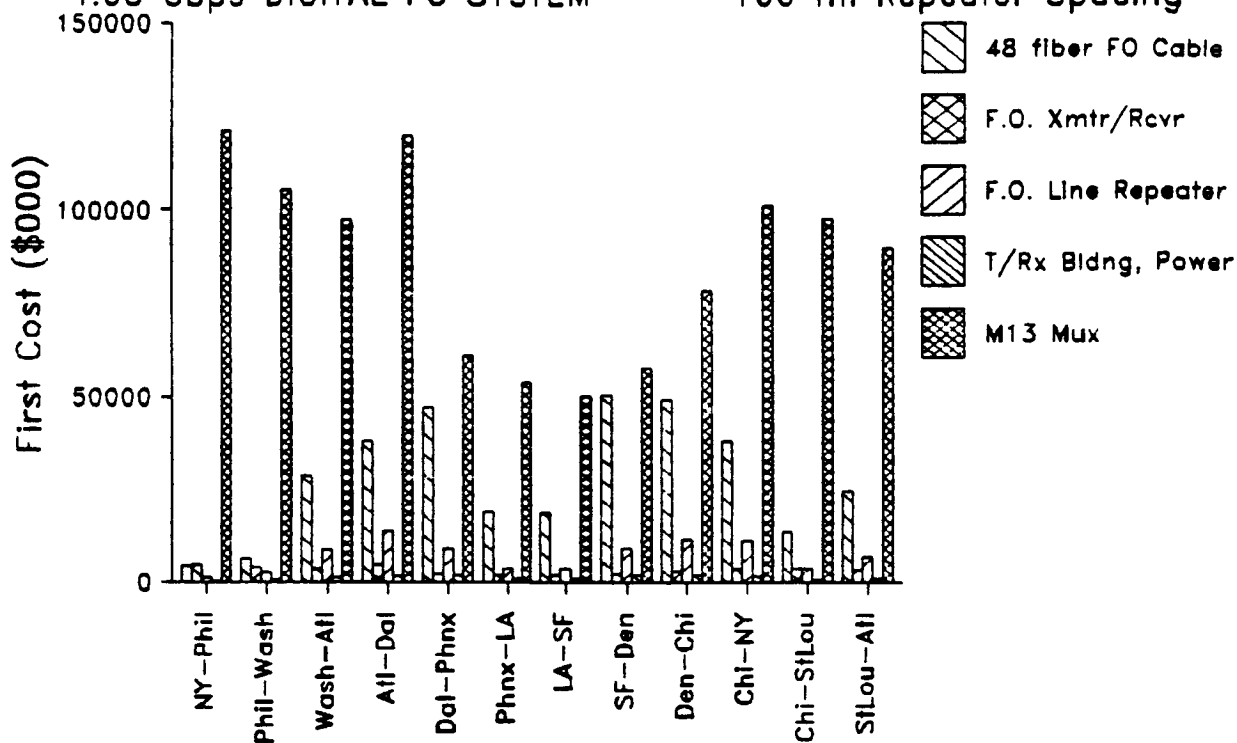


FIGURE 6.12: 11 NODE NETWORK .7 M 1995 (TRAFFIC, 96f FO CABLE

Traffic Factor	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4	Total
Mileage Factor	1.3685	1.15										
Actual Traffic	927896	808854	748163	919360	469774	412696	383618	439508	598131	778340	687983	
UF Ccts Req'd	1236794	1078472	997851	1225813	626365	550242	511491	586010	797509	1033786	998740	917310
Initial Fill	8											
Total WF Circuits	1545993	1348090	1246939	1532267	782956	687827	639364	732513	996886	1292233	1248424	1146538
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	298.92	534.66
Circuit Miles (000)	147654	191943	776543	1267554	798393	283360	287665	796243	1051208	1056490	373178	613059
1.7 Gbps DIGITAL FO SYSTEM												
100 mi Repeater Spacing												
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	16156	395364
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	2961	1083	26495
96f Ca Splicing	1513	2255	9865	13103	16162	6526	6381	17218	16703	12950	4735	115871
Cable Installation	410	3906	3654	4410	2394	2142	2016	2268	2898	3780	3276	38808
F.O. Htr/Rcvr	1470	2604	8526	13230	8778	3570	3360	8316	10626	11340	3654	82026
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	750	15600
T/Rx Bldg, Power	120803	105368	97440	119753	61215	53760	49980	57278	77910	100958	97546	1031625
M13 Mux	134153	122944	156749	199853	149296	90806	86019	149717	170900	177827	127577	139948
GRAND TOTAL - FC	1405	863	252	242	146	220	214	138	162	218	427	233
\$ per mile (000)	.91	.64	.20	.16	.19	.52	.33	.19	.16	.17	.34	.22
\$/cct-mi												
Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	17816	6514	159396
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	1194	436	10682
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	46715
Cable Installation	2766	2450	2292	2766	1502	1344	1265	1423	1818	2292	2292	24342
F.O. Htr/Rcvr	922	1633	5348	8298	5506	2239	2108	5216	6665	7113	2292	51450
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	300	6232
T/Rx Bldg, Power	75772	66091	61118	75114	38396	33720	31349	35927	48868	63325	61184	647076
M13 Mux	82471	74633	87754	111354	76404	49932	47080	75559	89381	97697	74926	945892
GRAND TOTAL - RC	863	524	141	135	75	121	117	70	85	119	251	129
\$ per mile (000)	.56	.39	.11	.09	.10	.18	.16	.09	.09	.09	.20	.12
\$/cct-mi												
4.05 Gbps DIGITAL FO SYSTEM												
100 mi Repeater Spacing												
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	16156	395364
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	2961	1083	26495
96f Ca Splicing	1513	2255	9865	13103	16162	6526	6381	17218	16703	12950	4735	115871
Cable Installation	410	3906	3654	4410	2394	2142	2016	2268	2898	3780	3276	38808
F.O. Htr/Rcvr	1470	2604	8526	13230	8778	3570	3360	8316	10626	11340	3654	82026
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	750	15600
T/Rx Bldg, Power	120803	105368	97440	119753	61215	53760	49980	57278	77910	100958	97546	1031625
M13 Mux	134573	123259	157169	201113	149884	90974	86523	150893	172076	177827	127829	140515
GRAND TOTAL - FC	1409	866	252	243	147	221	215	139	163	218	428	234
\$ per mile (000)	.91	.64	.20	.16	.19	.52	.34	.19	.16	.17	.34	.22
\$/cct-mi												
Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	17816	6514	159396
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	1194	436	10682
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	46715
Cable Installation	2964	2569	2371	2964	1581	1383	1383	1581	1976	2371	2371	25685
F.O. Htr/Rcvr	988	1712	5532	8891	5796	2305	2305	5796	7245	7113	2371	54400
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	300	6232
T/Rx Bldg, Power	75772	66091	61118	75114	38396	33720	31349	35927	48868	63325	61184	647076
M13 Mux	82734	74831	88017	112144	76773	50037	47396	76297	90119	97697	75085	79087
GRAND TOTAL - RC	866	526	141	136	75	121	116	70	85	119	251	130
\$ per mile (000)	.56	.39	.11	.09	.10	.18	.16	.10	.09	.09	.20	.12
\$/cct-mi												

EXHIBIT 6.12A: 11 NODE NETWORK (1995-30%)

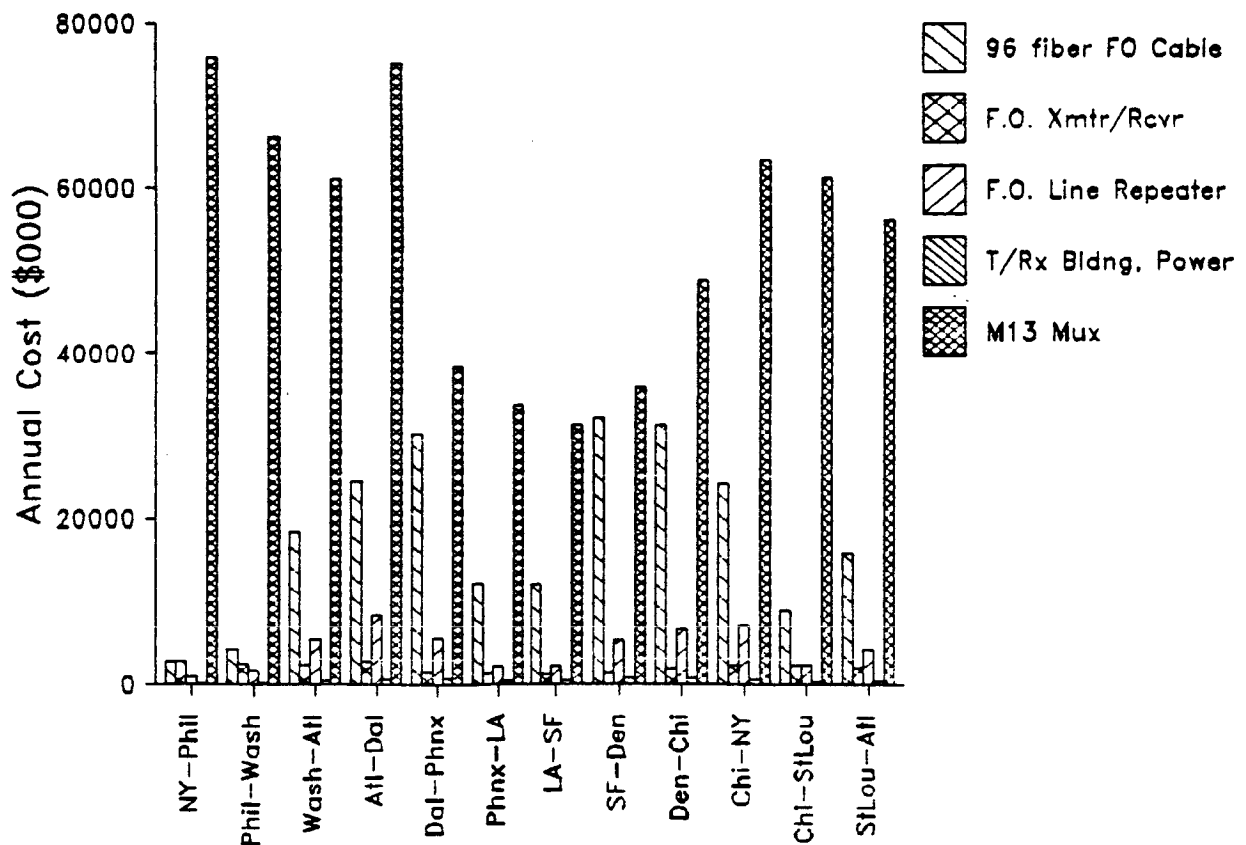
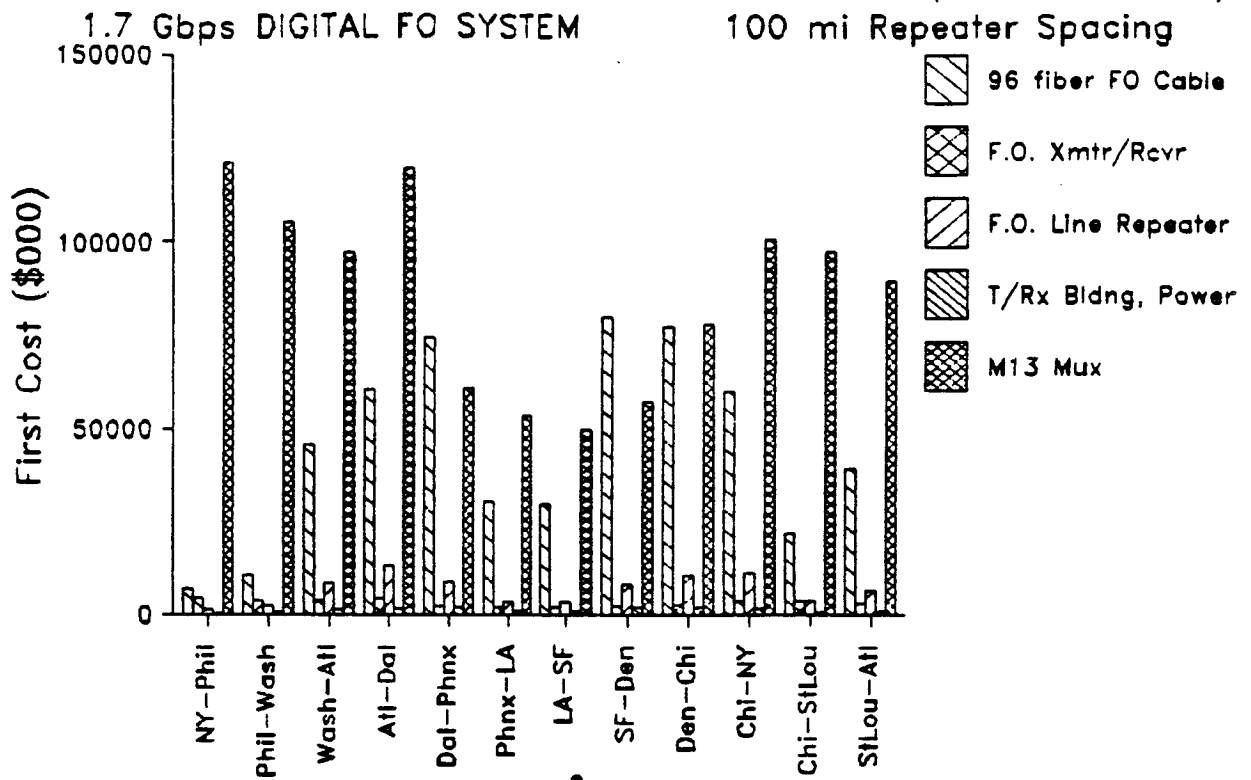


EXHIBIT 6.12B: 11 NODE NETWORK (1995-30%)

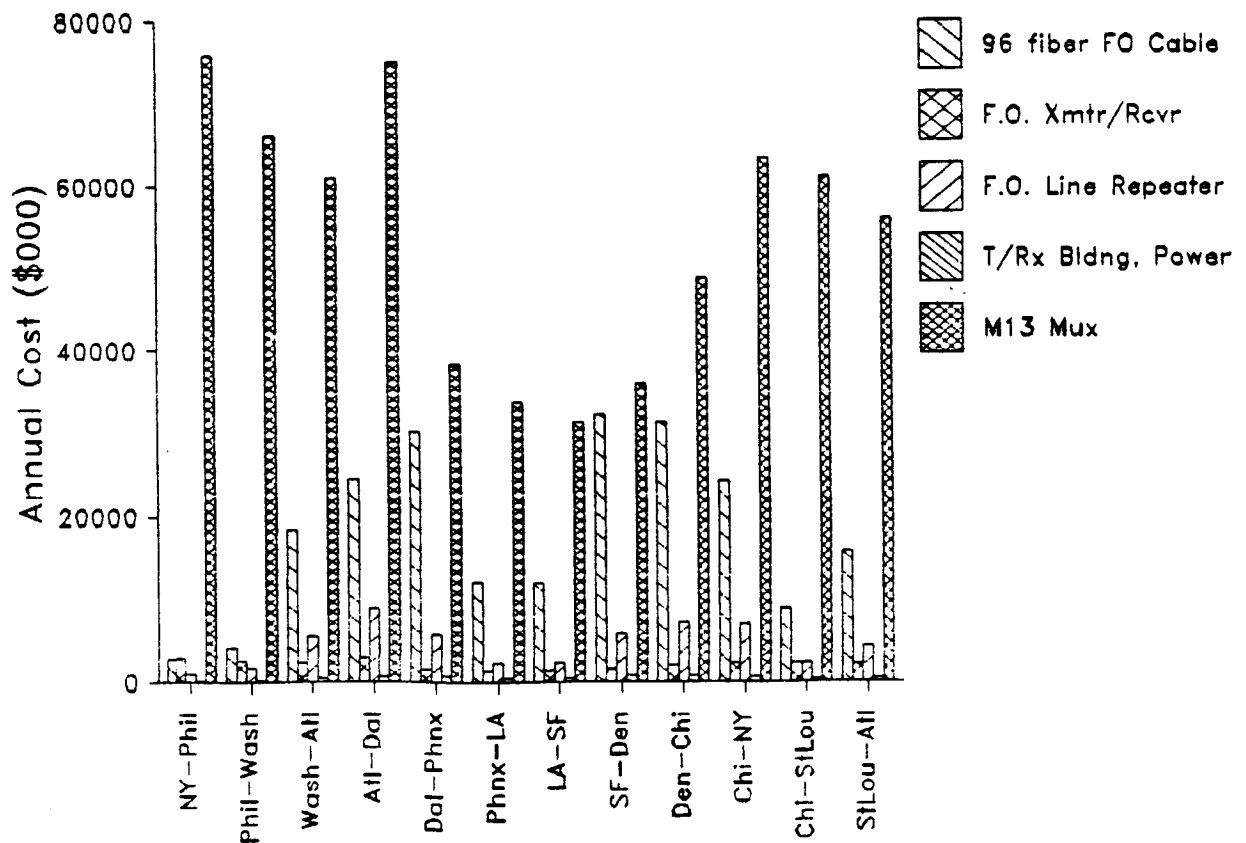
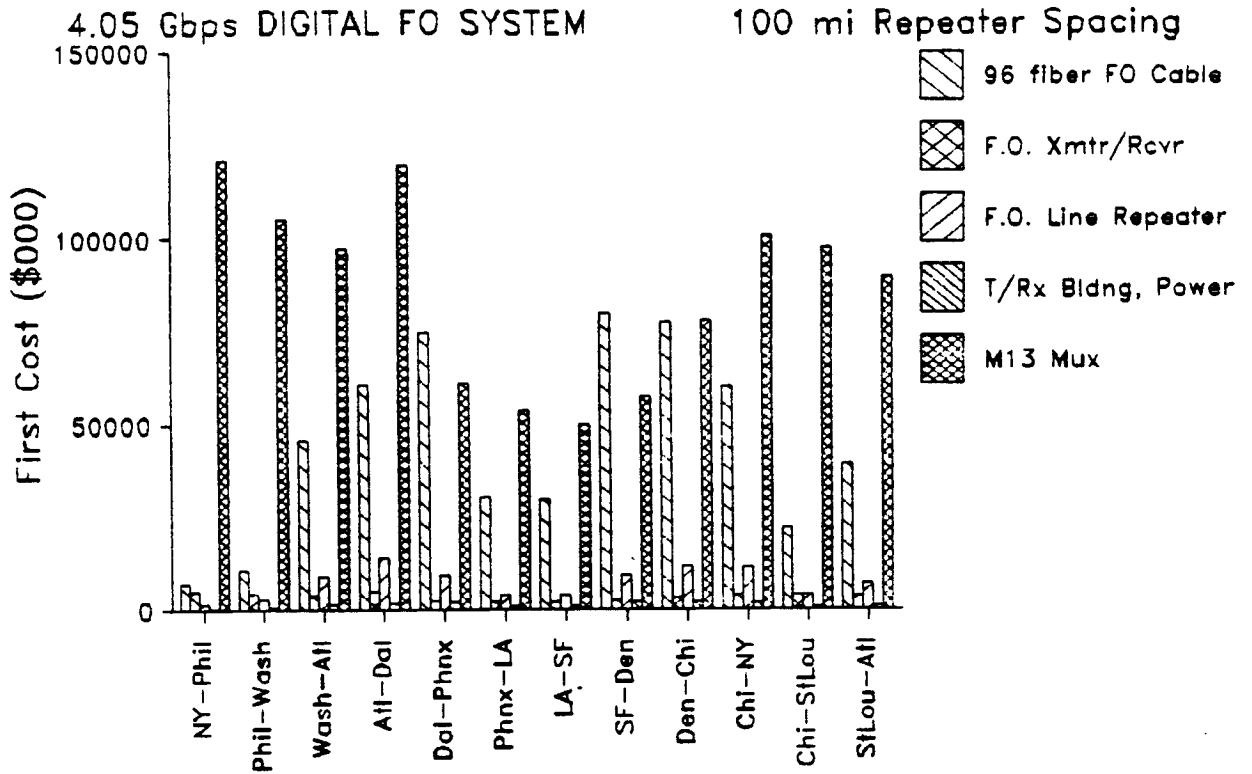


FIGURE 6.13: 11 NODE NETWORK 2000 TRAFFIC, 48f FO CABLE

Traffic Factor		Route											
Mileage Factor		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4	Total
3.2775													
1.15													
Actual Traffic		2221553	1937171	1791820	2201829	1125088	988390	918750	1052602	1432600	1856906	1647689	
VF Ccts Req'd		2962070	2582895	2389093	2935772	1500118	1317853	1225000	1403470	1909999	2475875	2196919	
Initial Fill		-8											
Total VF Circuits		3702588	3228619	2986367	3669715	1875147	1647317	1531250	1754337	2387499	3094844	2989924	2746149
System Mileage		95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	298.92	534.66
Circuit Miles<000>		353625	459496	1859788	3035738	1912119	678636	616856	1906970	2517600	2830250	893747	1468251
1.05 Gbps DIGITAL FO SYSTEM		150 mi Repeater Spacing											
First Cost (\$0000)		5455	6133	35572	47252	29123	11756	11505	31045	30116	46700	17074	30540
48 fiber FO Cable		369	550	2406	3196	1970	796	778	2100	2037	3159	1155	2066
48f Ca Splicing		1513	2285	9658	13103	16152	6526	6361	17218	16703	12980	4735	8469
Cable Installation		10710	9480	8920	10710	8670	8040	4728	5385	6930	9135	8820	7875
F.O. Mtrr/Rcur		3670	3150	14700	21420	13230	5040	4728	14280	18480	18270	5880	103240
F.O. Line Repeater		450	450	1050	1200	1350	750	750	1500	1500	1200	600	11700
T/RM Bldg, Power		289275	252263	233310	286703	146528	128730	119646	137076	186533	241815	233625	214568
N13 Num		311342	276251	305723	383584	214023	158647	148812	208876	262299	333229	271889	3148993
GRAND TOTAL - FC		3260	1940	491	464	210	395	369	192	249	408	514	430
\$ per mile <000>		.88	.60	.16	.13	.11	.23	.24	.11	.10	.13	.30	.17
\$/cct-mi													
Annual Cost (\$0000)		2199	3279	14341	19050	11741	4743	4638	12516	12142	18928	6884	122675
48 fiber FO Cable		149	222	970	1289	794	321	314	847	821	1274	466	8299
48f Ca Splicing		610	909	3977	5263	6512	2631	2573	6942	6734	5221	1909	3414
Cable Installation		6718	5927	5532	6718	3556	3161	2964	3359	4347	5730	5532	4940
F.O. Mtrr/Rcur		2239	1976	9220	13435	8298	3161	2964	8957	11891	11460	3688	6586
F.O. Line Repeater		180	180	419	479	539	300	300	599	599	479	240	360
T/RM Bldg, Power		181445	158229	146341	179831	91908	80745	75048	85980	117001	151676	146539	134585
N13 Num		193540	170722	180802	226086	123350	95042	88800	119200	153235	194667	165257	1549327
GRAND TOTAL - AC		2026	1199	290	273	121	231	220	110	145	238	553	1873750
\$ per mile <000>		.55	.37	.10	.07	.06	.14	.14	.06	.06	.08	.18	.256
\$/cct-mi													.11
8.1 Gbps DIGITAL FO SYSTEM		150 mi Repeater Spacing											
First Cost (\$0000)		2728	4066	17786	23626	29123	11756	11505	31045	30116	23350	8537	208918
48 fiber FO Cable		185	275	1203	1598	1970	796	778	2100	2037	1580	578	1033
48f Ca Splicing		1513	2255	9655	13103	16152	6526	6361	17218	16703	12950	4735	8469
Cable Installation		11340	10080	9450	11340	5670	5040	5040	5670	6930	9450	9450	8190
F.O. Mtrr/Rcur		3780	3360	15750	22680	13230	5040	5040	15120	18480	18900	6300	10920
F.O. Line Repeater		450	450	1050	1200	1350	750	750	1500	1500	1200	600	900
T/RM Bldg, Power		289275	252263	233310	286703	146528	128730	119646	137076	186533	241815	233625	214568
N13 Num		309270	272749	288414	360250	214023	158647	149142	209731	262299	309245	259349	3056944
GRAND TOTAL - FC		3236	1916	463	435	210	395	370	193	249	376	883	485
\$ per mile <000>		.87	.59	.16	.12	.11	.23	.24	.11	.10	.12	.30	.17
\$/cct-mi													
Annual Cost (\$0000)		1100	1639	7171	9525	11741	4743	4638	12516	12142	18914	3442	64228
48 fiber FO Cable		74	111	485	644	794	321	314	847	821	637	233	416
48f Ca Splicing		610	909	3977	5263	6512	2631	2573	6942	6734	5221	1909	3414
Cable Installation		7113	6323	3161	3556	3161	3161	3161	3556	4347	5727	5927	46715
F.O. Mtrr/Rcur		2371	2108	9879	14226	8298	3161	3161	9484	11891	11850	3952	61280
F.O. Line Repeater		180	180	419	479	539	300	300	599	599	479	240	6849
T/RM Bldg, Power		181445	158229	146341	179831	91908	80745	75048	85980	117001	151676	146539	134585
N13 Num		192892	169498	174200	217102	123350	98062	89195	119924	153235	185209	162241	156918
GRAND TOTAL - AC		2020	1190	280	262	121	221	221	110	145	227	543	251
\$ per mile <000>		.55	.37	.09	.07	.06	.14	.14	.06	.06	.07	.18	.10
\$/cct-mi													

EXHIBIT 6.13A: 11 NODE NETWORK (2000)

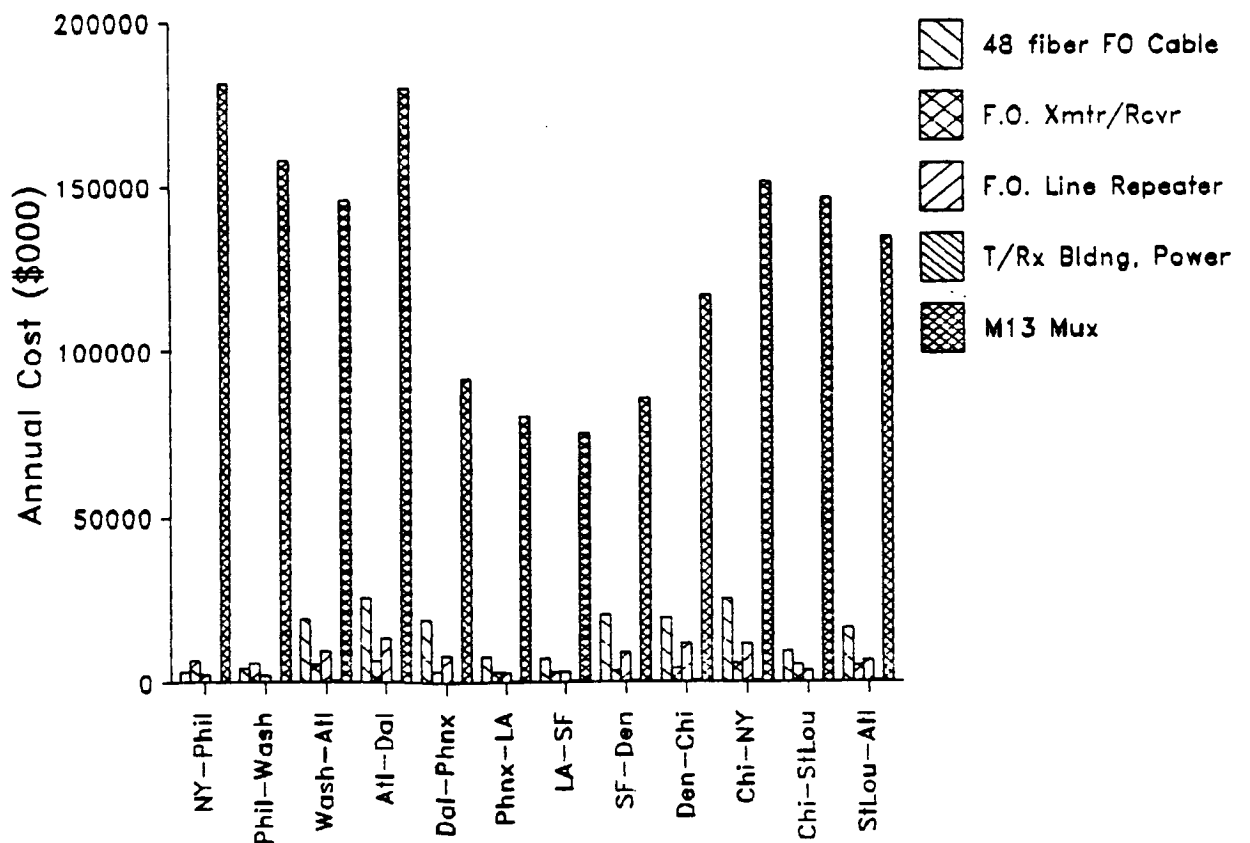
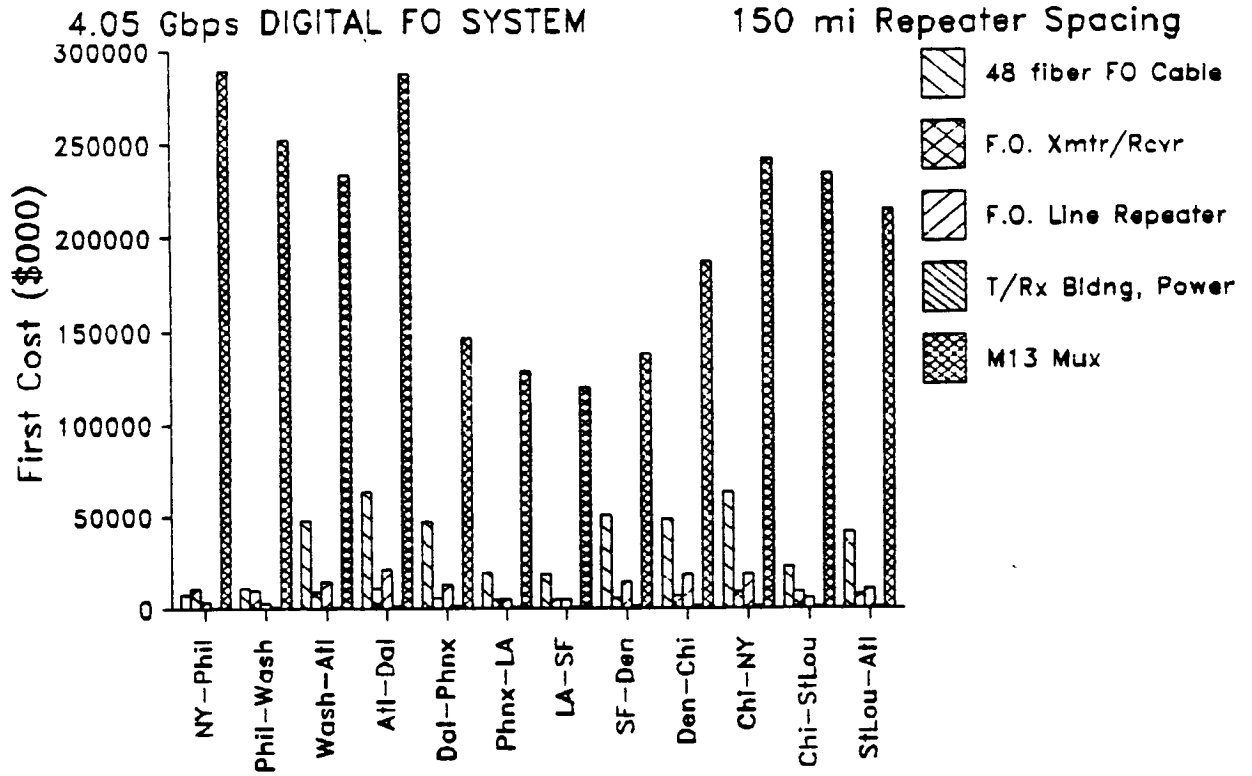


EXHIBIT 6.13B: 11 NODE NETWORK (2000)

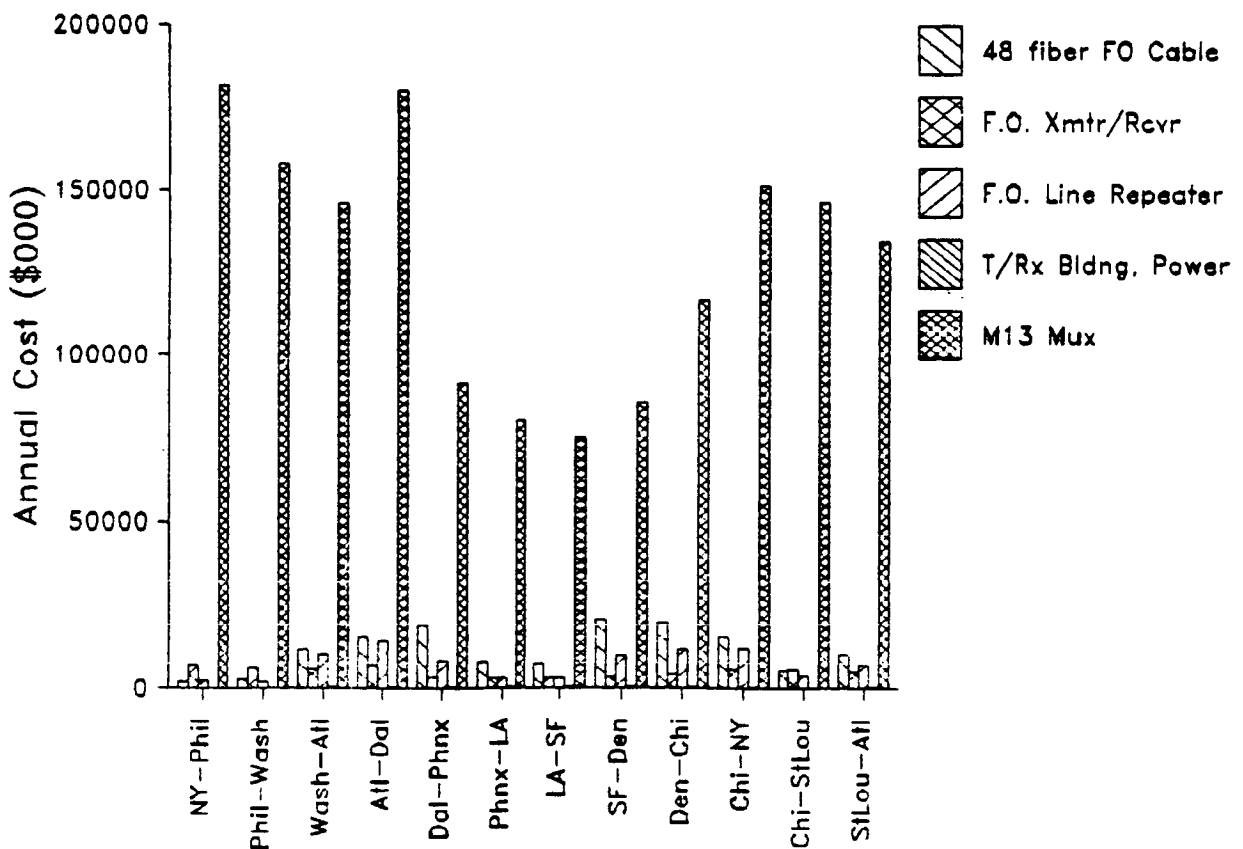
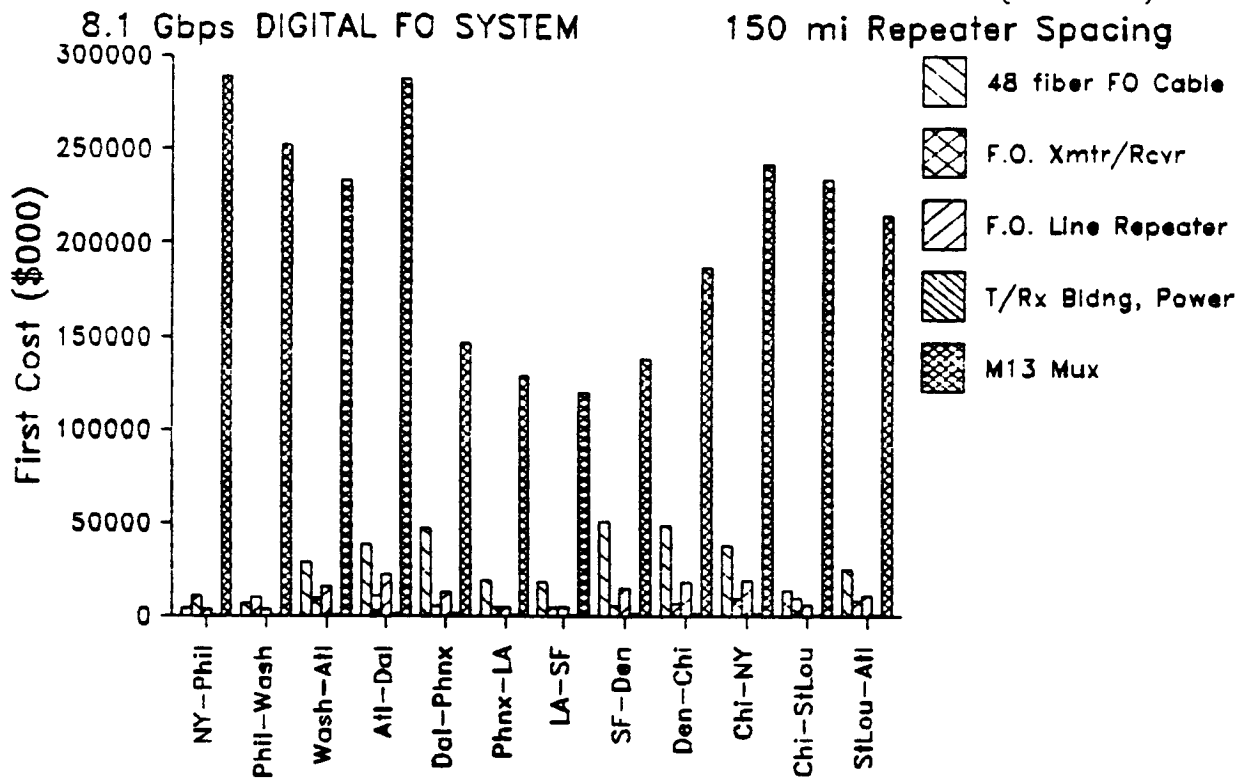


FIGURE 6.14: 11 NODE NETWORK 2000 TRAFFIC, 96F FO CABLE

Route	2000 TRAFFIC, 96F FO CABLE										Total
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	
Traffic Factor	3.2775										
Mileage Factor	1.15										
Actual Traffic	2221953	1937171	1791820	2201029	1125088	988390	918750	1052602	1432800	1793954	1647689
UF Ccts Req'd	2962070	2582895	2389093	2935772	1500118	1317853	1225000	1403470	1909999	2391939	2196919
Initial Fill											
Total UF Circuits	3702888	3228619	2986367	3669715	1875147	1647317	1831280	1754337	2387499	2989924	2746149
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.88	1087.00	1054.49	298.92	534.66
Circuit Miles(000)	353625	459696	1859788	3035738	1912119	678636	616856	1906970	2817600	893747	1468251
4.05 Gbps DIGITAL FO SYSTEM											
150 mi Repeater Spacing											
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	28897
96 fiber FO Cable	346	516	2256	2996	3693	1472	1459	3937	3819	2961	1937
96f Ca Splicing	1513	2255	9865	13103	16152	6326	6381	17218	16703	12950	8469
Cable Installation	10710	9480	8820	10710	5670	8040	4728	5355	6930	9135	7875
F.O. Mtr/Rcvr	3670	3150	14700	21420	13230	8040	4728	14280	18480	18270	10500
F.O. Line Repeater	450	450	1050	1200	1350	750	750	1500	1500	1200	900
T/Rm Bldng, Power	289275	252263	233310	286703	146528	128730	119648	137078	186833	241815	214568
M13 Mux	311026	275779	303569	380843	241737	169844	159461	239118	290958	330520	273145
GRAND TOTAL - FC	3257	1937	488	460	237	412	396	219	276	404	511
\$ per mile (000)											
\$/cct-mi	.88	.60	.16	.13	.13	.28	.26	.12	.12	.13	.19
Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	17815	11650
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	1194	781
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414
Cable Installation	6718	5927	5532	6718	3556	3161	2864	3359	4347	5730	4940
F.O. Mtr/Rcvr	2239	1976	9220	13435	8298	3161	2964	8957	11891	6730	5532
F.O. Line Repeater	180	180	419	479	539	296	300	599	479	240	360
T/Rm Bldng, Power	181445	158229	146341	179831	91908	80748	75048	85980	117001	151676	134585
M13 Mux	193412	170532	179970	224980	134523	99576	93214	131110	164789	193575	162316
GRAND TOTAL - AC	2025	1198	289	272	132	242	231	121	156	237	304
\$ per mile (000)											
\$/cct-mi	.55	.37	.10	.07	.07	.15	.15	.07	.07	.06	.11
8.1 Gbps DIGITAL FO SYSTEM											
150 mi Repeater Spacing											
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	28897
96 fiber FO Cable	346	516	2256	2996	3693	1472	1459	3937	3819	2961	1937
96f Ca Splicing	1513	2255	9865	13103	16152	6326	6381	17218	16703	12950	8469
Cable Installation	11340	10080	9450	11340	5670	5040	5040	5670	6930	9450	8190
F.O. Mtr/Rcvr	3780	3360	15750	22680	13230	8040	4728	14280	18480	18270	10500
F.O. Line Repeater	450	450	1050	1200	1350	750	750	1500	1500	1200	900
T/Rm Bldng, Power	289275	252263	233310	286703	146528	128730	119648	137078	186833	241815	214568
M13 Mux	311866	276619	305339	382733	241737	169844	160091	239273	290958	331465	273880
GRAND TOTAL - FC	3265	1943	490	463	237	412	397	220	276	405	512
\$ per mile (000)											
\$/cct-mi	.86	.60	.16	.13	.13	.28	.26	.13	.12	.13	.19
Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	17815	11650
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	1194	781
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414
Cable Installation	6718	5927	5532	6718	3556	3161	2864	3359	4347	5730	4940
F.O. Mtr/Rcvr	2239	1976	9220	13435	8298	3161	2964	8957	11891	6730	5532
F.O. Line Repeater	180	180	419	479	539	296	300	599	479	240	360
T/Rm Bldng, Power	181445	158229	146341	179831	91908	80748	75048	85980	117001	151676	134585
M13 Mux	193939	171059	181024	226166	134523	99576	93609	131835	164789	194167	162777
GRAND TOTAL - AC	2031	1201	291	273	132	242	232	121	156	237	304
\$ per mile (000)											
\$/cct-mi	.55	.37	.10	.07	.07	.15	.15	.07	.07	.06	.11

EXHIBIT 6.14A: 11 NODE NETWORK (2000)

4.05 Gbps DIGITAL FO SYSTEM

150 mi Repeater Spacing

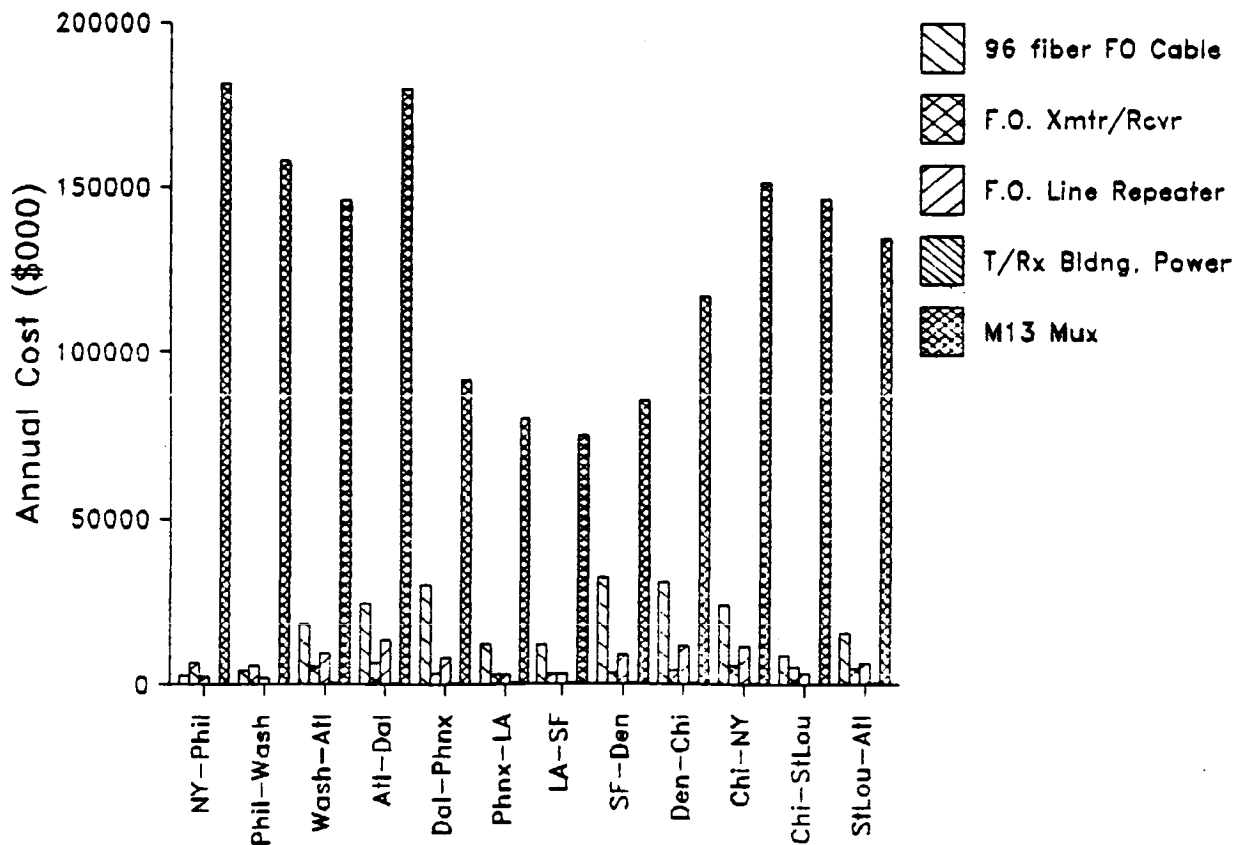
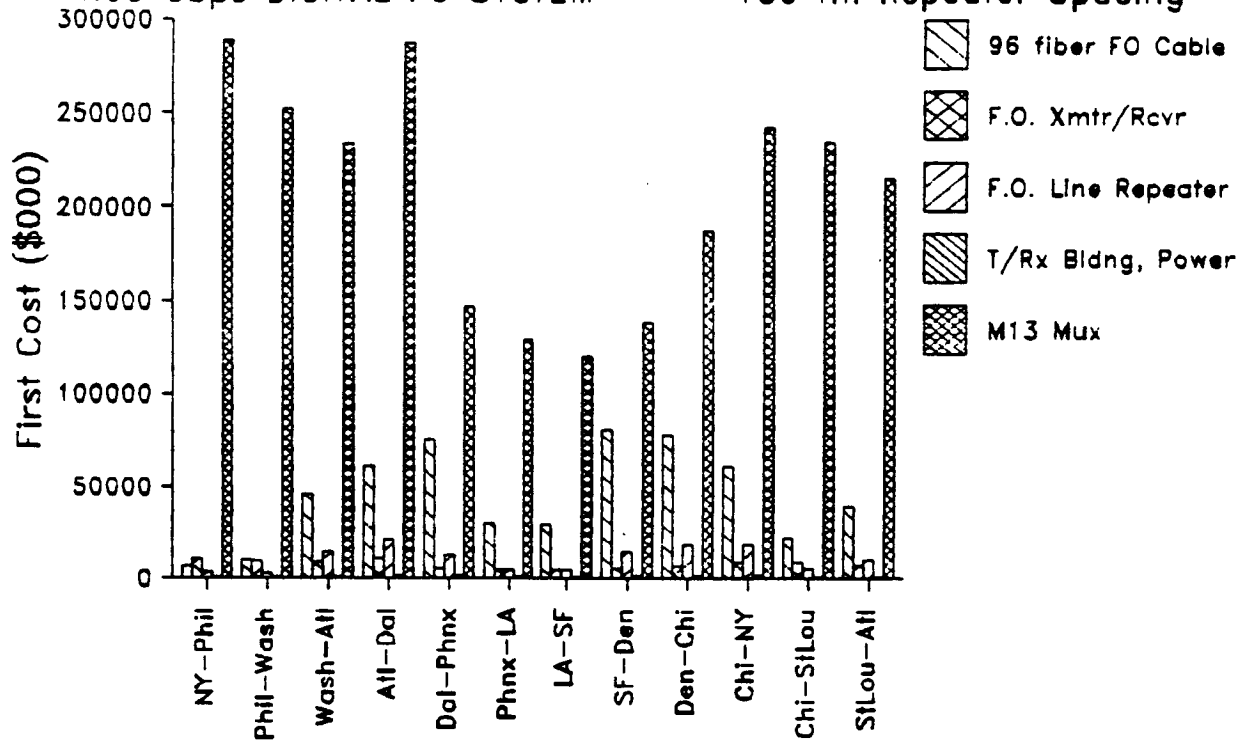


EXHIBIT 6.14B: 11 NODE NETWORK (2000)

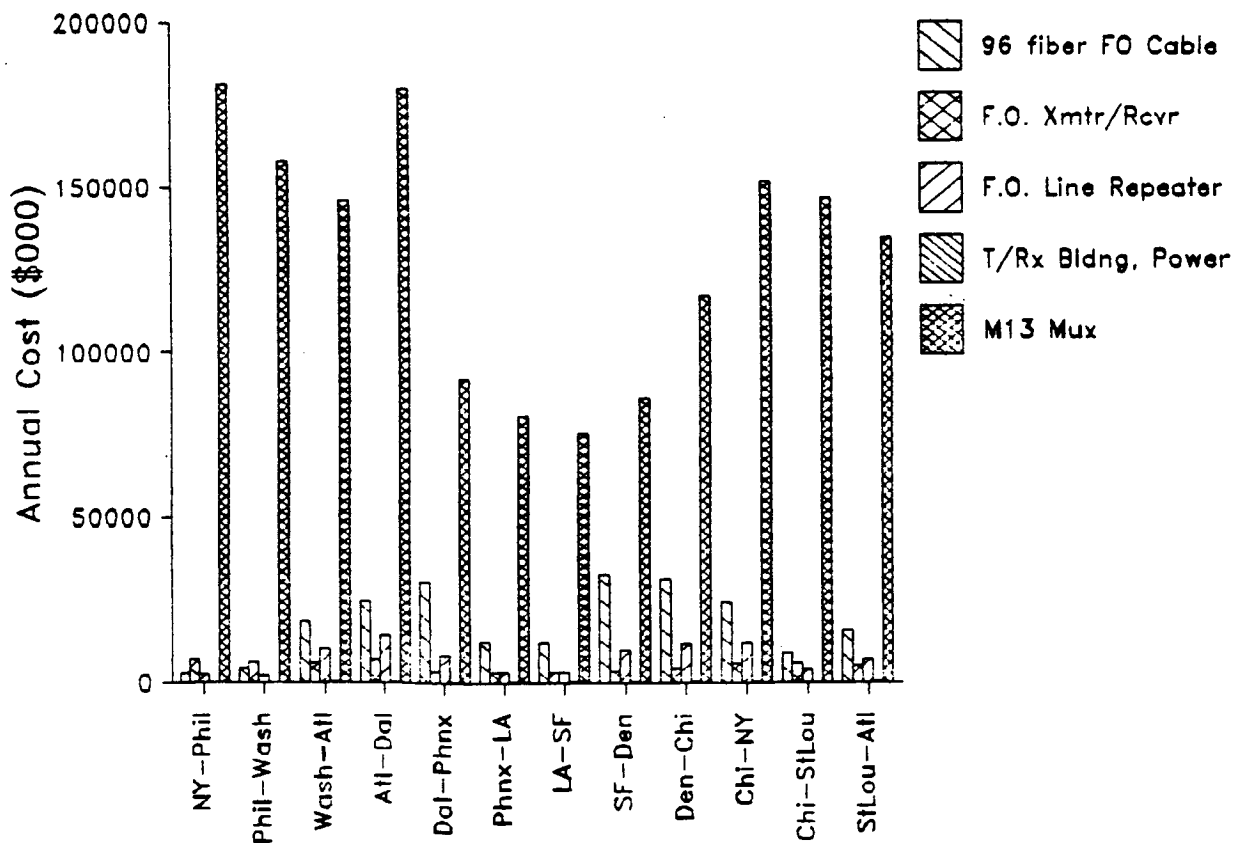
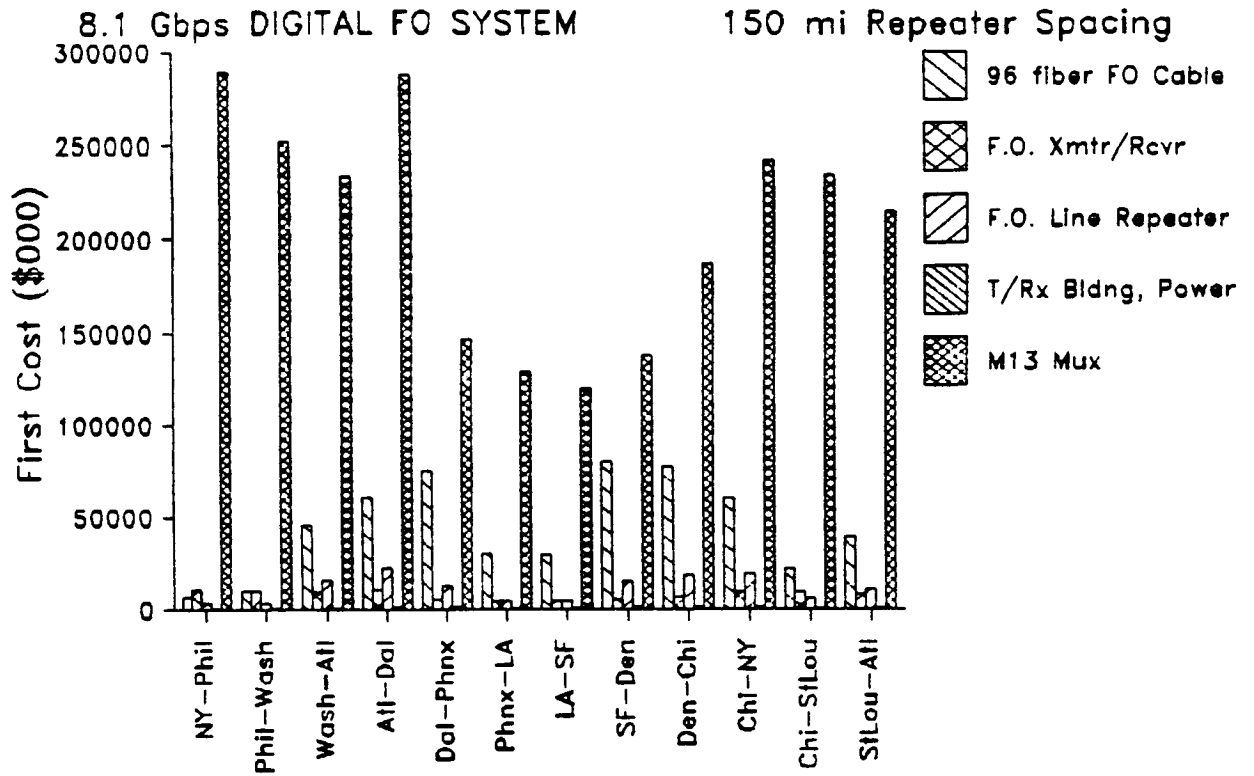


EXHIBIT 6.15: 15 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)

Page 1 of 4

Link	Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
1-2	Traffic	83.05	123.81	541.53	719.34	886.71	358.23	350.30	945.22	916.95	710.93	259.93
1-3	74379.1	74379.1										464.92
1-4	54427.5	54427.5	54427.5									
1-5	83749.7	83749.7	83749.7	83749.7								
1-6	53807.2	53807.2	53807.2	53807.2	53807.2							
1-7	8550.6	8550.6	8550.6	8550.6	8550.6							
1-8	28407.6	28407.6	28407.6	28407.6	28407.6	28407.6						
1-9	19678.6	19678.6	19678.6	19678.6	19678.6	19678.6	19678.6	19678.6	19678.6	19678.6	19678.6	19678.6
1-10	24945.2	24945.2	24945.2	24945.2	24945.2	24945.2	24945.2	24945.2	24945.2	24945.2	24945.2	24945.2
1-11	141186.7	141186.7	141186.7	141186.7	141186.7	141186.7	141186.7	141186.7	141186.7	141186.7	141186.7	141186.7
1-12	31542.1	31542.1	31542.1	31542.1	31542.1	31542.1	31542.1	31542.1	31542.1	31542.1	31542.1	31542.1
1-13	30942.7	30942.7	30942.7	30942.7	30942.7	30942.7	30942.7	30942.7	30942.7	30942.7	30942.7	30942.7
1-14	13671.3	13671.3	13671.3	13671.3	13671.3	13671.3	13671.3	13671.3	13671.3	13671.3	13671.3	13671.3
1-15	19437.2	19437.2	19437.2	19437.2	19437.2	19437.2	19437.2	19437.2	19437.2	19437.2	19437.2	19437.2
2-3	51200.6	51200.6	51200.6	51200.6	51200.6	51200.6	51200.6	51200.6	51200.6	51200.6	51200.6	51200.6
2-4	32893.1	32893.1	32893.1	32893.1	32893.1	32893.1	32893.1	32893.1	32893.1	32893.1	32893.1	32893.1
2-5	44874.9	44874.9	44874.9	44874.9	44874.9	44874.9	44874.9	44874.9	44874.9	44874.9	44874.9	44874.9
2-6	28349.5	28349.5	28349.5	28349.5	28349.5	28349.5	28349.5	28349.5	28349.5	28349.5	28349.5	28349.5
2-7	4955.3	4955.3	4955.3	4955.3	4955.3	4955.3	4955.3	4955.3	4955.3	4955.3	4955.3	4955.3
2-8	14735.3	14735.3	14735.3	14735.3	14735.3	14735.3	14735.3	14735.3	14735.3	14735.3	14735.3	14735.3
2-9	7134.2	7134.2	7134.2	7134.2	7134.2	7134.2	7134.2	7134.2	7134.2	7134.2	7134.2	7134.2
2-10	13273.6	13273.6	13273.6	13273.6	13273.6	13273.6	13273.6	13273.6	13273.6	13273.6	13273.6	13273.6
2-11	75797.0	75797.0	75797.0	75797.0	75797.0	75797.0	75797.0	75797.0	75797.0	75797.0	75797.0	75797.0
2-12	16955.9	16955.9	16955.9	16955.9	16955.9	16955.9	16955.9	16955.9	16955.9	16955.9	16955.9	16955.9
2-13	17884.5	17884.5	17884.5	17884.5	17884.5	17884.5	17884.5	17884.5	17884.5	17884.5	17884.5	17884.5
2-14	7284.7	7284.7	7284.7	7284.7	7284.7	7284.7	7284.7	7284.7	7284.7	7284.7	7284.7	7284.7
2-15	11484.2	11484.2	11484.2	11484.2	11484.2	11484.2	11484.2	11484.2	11484.2	11484.2	11484.2	11484.2
3-4	21237.1	21237.1	21237.1	21237.1	21237.1	21237.1	21237.1	21237.1	21237.1	21237.1	21237.1	21237.1
3-5	41912.0	41912.0	41912.0	41912.0	41912.0	41912.0	41912.0	41912.0	41912.0	41912.0	41912.0	41912.0
3-6	26795.8	26795.8	26795.8	26795.8	26795.8	26795.8	26795.8	26795.8	26795.8	26795.8	26795.8	26795.8
3-7	5103.5	5103.5	5103.5	5103.5	5103.5	5103.5	5103.5	5103.5	5103.5	5103.5	5103.5	5103.5
3-8	13064.2	13064.2	13064.2	13064.2	13064.2	13064.2	13064.2	13064.2	13064.2	13064.2	13064.2	13064.2
3-9	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2
3-10	11402.4	11402.4	11402.4	11402.4	11402.4	11402.4	11402.4	11402.4	11402.4	11402.4	11402.4	11402.4
3-11	65032.8	65032.8	65032.8	65032.8	65032.8	65032.8	65032.8	65032.8	65032.8	65032.8	65032.8	65032.8
3-12	15675.8	15675.8	15675.8	15675.8	15675.8	15675.8	15675.8	15675.8	15675.8	15675.8	15675.8	15675.8
3-13	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9
3-14	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3
3-15	9939.9	9939.9	9939.9	9939.9	9939.9	9939.9	9939.9	9939.9	9939.9	9939.9	9939.9	9939.9
4-5	16107.1	16107.1	16107.1	16107.1	16107.1	16107.1	16107.1	16107.1	16107.1	16107.1	16107.1	16107.1
4-6	65948.5	65948.5	65948.5	65948.5	65948.5	65948.5	65948.5	65948.5	65948.5	65948.5	65948.5	65948.5
4-7	10598.2	10598.2	10598.2	10598.2	10598.2	10598.2	10598.2	10598.2	10598.2	10598.2	10598.2	10598.2
4-8	36986.6	36986.6	36986.6	36986.6	36986.6	36986.6	36986.6	36986.6	36986.6	36986.6	36986.6	36986.6
4-9	22034.3	22034.3	22034.3	22034.3	22034.3	22034.3	22034.3	22034.3	22034.3	22034.3	22034.3	22034.3
4-10	24199.9	24199.9	24199.9	24199.9	24199.9	24199.9	24199.9	24199.9	24199.9	24199.9	24199.9	24199.9
4-11	127901.5	127901.5	127901.5	127901.5	127901.5	127901.5	127901.5	127901.5	127901.5	127901.5	127901.5	127901.5
4-12	33257.5	33257.5	33257.5	33257.5	33257.5	33257.5	33257.5	33257.5	33257.5	33257.5	33257.5	33257.5
4-13	37408.8	37408.8	37408.8	37408.8	37408.8	37408.8	37408.8	37408.8	37408.8	37408.8	37408.8	37408.8
4-14	14831.4	14831.4	14831.4	14831.4	14831.4	14831.4	14831.4	14831.4	14831.4	14831.4	14831.4	14831.4
4-15	19570.7	19570.7	19570.7	19570.7	19570.7	19570.7	19570.7	19570.7	19570.7	19570.7	19570.7	19570.7
5-6	26194.8	26194.8	26194.8	26194.8	26194.8	26194.8	26194.8	26194.8	26194.8	26194.8	26194.8	26194.8
5-7	12622.7	12622.7	12622.7	12622.7	12622.7	12622.7	12622.7	12622.7	12622.7	12622.7	12622.7	12622.7
5-8	40136.3	40136.3	40136.3	40136.3	40136.3	40136.3	40136.3	40136.3	40136.3	40136.3	40136.3	40136.3
5-9	27222.9	27222.9	27222.9	27222.9	27222.9	27222.9	27222.9	27222.9	27222.9	27222.9	27222.9	27222.9
5-10	14713.7	14713.7	14713.7	14713.7	14713.7	14713.7	14713.7	14713.7	14713.7	14713.7	14713.7	14713.7
5-11	97483.9	97483.9	97483.9	97483.9	97483.9	97483.9	97483.9	97483.9	97483.9	97483.9	97483.9	97483.9
5-12	30290.0	30290.0	30290.0	30290.0	30290.0	30290.0	30290.0	30290.0	30290.0	30290.0	30290.0	30290.0
5-13	28097.1	28097.1	28097.1	28097.1	28097.1	28097.1	28097.1	28097.1	28097.1	28097.1	28097.1	28097.1
5-14	18342.5	18342.5	18342.5	18342.5	18342.5	18342.5	18342.5	18342.5	18342.5	18342.5	18342.5	18342.5
5-15	17121.4	17121.4	17121.4	17121.4	17121.4	17121.4	17121.4	17121.4	17121.4	17121.4	17121.4	17121.4

EXHIBIT 6.15: 15 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)

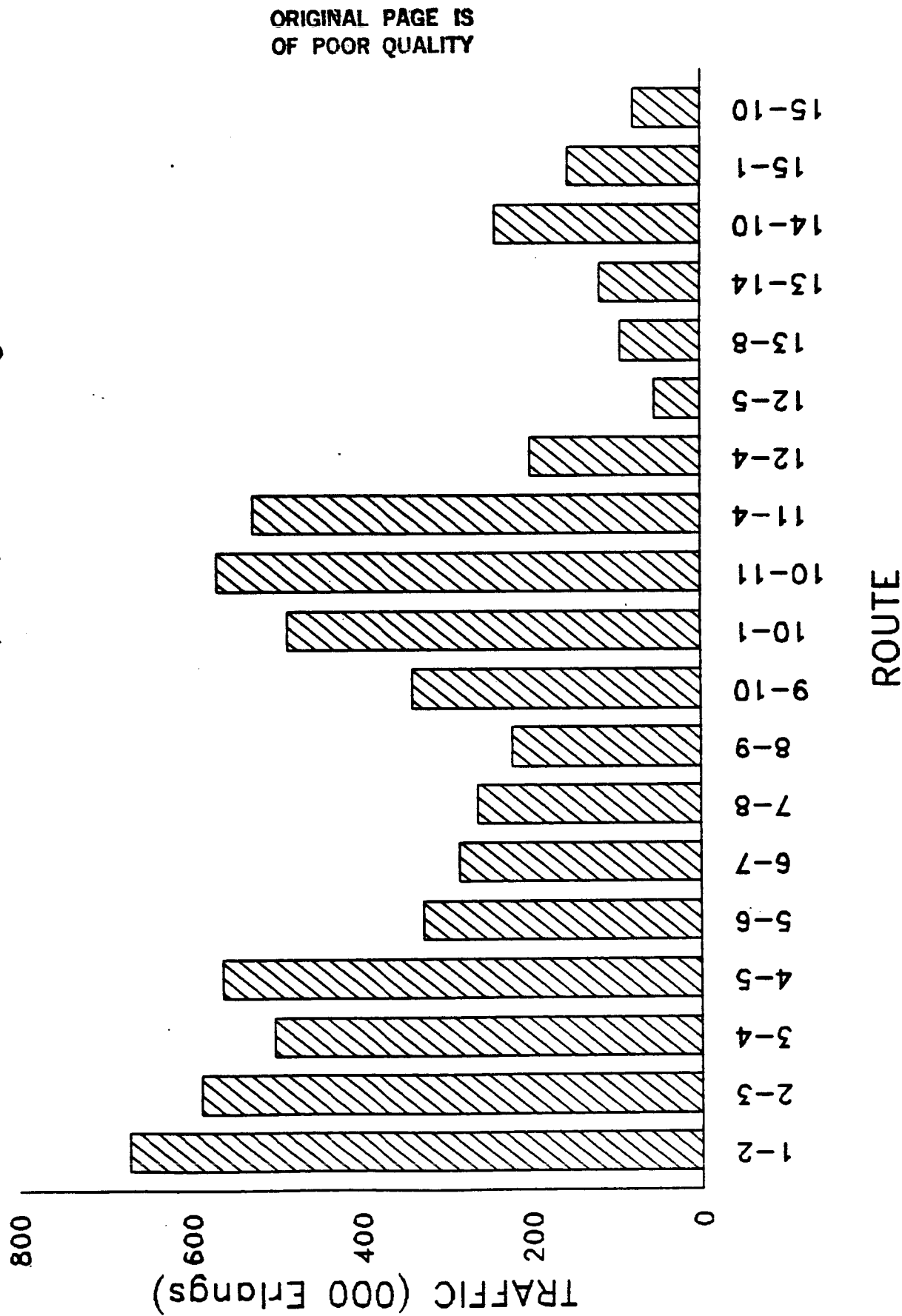
Link	Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4	
6-7	13521.4						13521.4						
6-8	8607.9						8607.9						
6-9	5973.4						5973.4						
6-10	16615.8								5973.4				
6-11	5061.4				16615.8	16615.8					16615.8	16615.8	
6-12	4844.7				5061.4	5061.4					5061.4	5061.4	
6-13	4322.8				4844.7								
6-14	3167.5						4322.8						
6-15	2789.5				3167.5	3167.5					3167.5	3167.5	
7-8	39978.5	2789.5	2789.5	2789.5	2789.5	2789.5							
7-9	23270.2							39978.5					
7-10	67806.0							23270.2	23270.2				
7-11	18842.8							67806.0	67806.0	67806.0			
7-12	12355.2												
7-13	23436.3				18842.8	18842.8							
7-14	12039.1				12355.2	12355.2							
7-15	9728.7	9728.7	9728.7	9728.7	9728.7	9728.7		23436.3					
8-9	16154.5							12039.1					
8-10	41810.0								16154.5				
8-11	12655.3								41810.0	41810.0			
8-12	8215.0								12655.3	12655.3			
8-13	17006.6					8215.0							
8-14	8319.0												
8-15	6722.8								6722.8	6722.8			
9-10	43626.8									43626.8			
9-11	13081.4									13081.4			
9-12	9791.2									9791.2	9791.2		
9-13	10644.6												
9-14	9156.9												
9-15	7762.3												
10-11	57325.8												
10-12	50771.6												
10-13	31061.9												
10-14	36176.8												
10-15	45440.4												
11-12	12701.6												
11-13	8463.7												
11-14	9744.2												
11-15	9406.3												
12-13	5546.9												
12-14	6842.6												
12-15	9474.5												
13-14	5660.0	9474.5	9474.5	9474.5	9474.5								
13-15	4566.2												
14-15	5653.6												
Total	2668829	671334.0	587480.8	501805.7	561764.5	324380.6	282496.9	261240.9	220741.8	336652.5	403860.3	567732.8	524387.2

EXHIBIT 6.15: 15 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)

Link	Route	12-4	12-5	13-8	13-14	14-10	15-1	15-10	Total
6-7									358.23
6-8									708.53
6-9									1653.75
6-10									2330.90
6-11									2070.97
6-12									1392.49
6-13									1392.30
6-14									2684.86
6-15									2541.83
7-8									350.30
7-9									1295.52
7-10									2212.47
7-11									2429.20
7-12									2350.72
7-13									1034.07
7-14									2427.17
7-15									2900.06
8-9									945.22
8-10									1862.17
8-11									2122.10
8-12									2701.02
8-13									683.77
8-14									2076.87
8-15									2710.28
9-10									916.95
9-11									1176.88
9-12									2234.74
9-13									1628.99
9-14									1270.91
9-15									1765.06
10-11									259.93
10-12									1317.79
10-13									1747.06
10-14									353.96
10-15									848.11
11-12									1057.86
11-13									2006.99
11-14									613.89
11-15									1108.04
12-13									3064.85
12-14									1671.75
12-15									2248.06
13-14									1393.10
13-15									2595.17
14-15									5653.6
Total									1202.07

EXHIBIT 6.15 A: 15 NODE ROUTING MATRIX

Total Traffic = 2,668,829 Erlangs



Page 1 of 2

1983 TRAFFIC, 46F FO CABLE

15 NODE NETWORK

Traffic Factor Mileage Factor	-5675 1.15
Route	1-2 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 10-11 11-4
Actual Traffic	380982
V/F Ccts Req'd	507976
Initial Fill	8
Total V/F Circuits	634970
System Mileage	95.51
Circuit Miles(000)	60644
405 mbps DIGITAL F0 SYSTEM	
First Cost (\$000)	20332
48 fiber FO Cable	13638
48 Ca Splicing	923
Cable Installation	1513
F.O. Mnt'r/Rcvr	4104
F.O. Line Repeater	5472
I/Rn Bldng. Power	900
M13 Num	28350
GRAND TOTAL - FC	54900
\$ per mile (0000)	575
\$/cct-mi	.91
Annual Cost (\$000)	8197
48 fiber FO Cable	5499
48 Ca Splicing	372
Cable Installation	610
F.O. Mnt'r/Rcvr	2574
F.O. Line Repeater	3432
I/Rn Bldng. Power	360
M13 Num	17782
GRAND TOTAL - AC	30629
\$ per mile (0000)	321
/cct-mi	.51

FIGURE 6.16: 15 NODE NETWORK 1983 TRAFFIC, 48f FO CABLE

Traffic Factor Mileage Factor	15 NODE NETWORK							1983 TRAFFIC, 48f FO CABLE			
	Route	12-4	12-5	13-8	13-14	14-10	15-1	15-10	Total		
Actual Traffic	112953	30368	53408	66764	136157	87889	45146	1514561			
VF Ccts Req'd	150603	40491	71211	89019	181542	117196	60194				
Initial Fill											
Total VF Circuits	188254	50613	89013	111274	226928	146482	75243	5923316			
System Mileage	681.88	1271.65	786.34	1602.07	407.05	215.50	976.33	13254.87			
Circuit Miles(000)	128367	64362	69994	178268	92372	31567	73386	3398247			
405 mbps DIGITAL FO SYSTEM 25 mi Repeater Spacing											
First Cost (\$000)											
48 fiber FO Cable	38949	36318	22458	45755	23251	12309	27855	901794			
48f Ca Splicing	2635	2457	1519	3095	1573	833	1884	61004			
Cable Installation	10801	20143	12456	25377	6448	3413	15449	209957			
F.O. Mtr/Rcur	1260	360	612	756	1512	1008	540	38880			
F.O. Line Repeater	11760	6120	6528	16380	8568	3024	7200	304536			
I/Rm Bldeg. Power	4500	7950	5100	10050	2850	1650	6300	86700			
M13 Num	8430	2280	3990	4980	10140	6540	3360	264690			
GRAND TOTAL - FC	78335	75628	52662	106393	54342	28777	62589	1867561			
\$ per mile (000)	115	59	67	66	133	134	64	141			
\$/cct-mi	.61	1.18	.75	.60	.59	.91	.85	.55			
Annual Cost (\$000)											
48 fiber FO Cable	15703	14642	9054	18447	9374	4963	11230	363570			
48f Ca Splicing	1062	991	612	1248	634	336	760	24594			
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647			
F.O. Mtr/Rcur	790	226	384	474	948	632	339	24387			
F.O. Line Repeater	7376	3839	4095	10274	5374	1897	4516	191017			
I/Rm Bldeg. Power	1798	3176	2037	4015	1138	659	2517	34633			
M13 Num	5288	1430	2503	3124	6360	4102	2108	166024			
GRAND TOTAL - AC	36372	32424	23707	47812	26429	13955	27697	888873			
\$ per mile (000)	53	25	30	30	65	65	28	67			
\$/cct-mi	.28	.50	.34	.27	.29	.44	.38	.26			

FIGURE 6.17:

Traffic Factor 1.64	25 mi Repeater Spacing										
Mileage Factor 1.15	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4
Route											
Actual Traffic	459192	401837	343235	384247	221876	193228	178594	150987	230270	388329	358681
UV Ccts Req'd	612257	535782	457647	512329	295835	257637	238259	201317	307027	517772	478241
Initial Fill	6										
Total VF Circuits	765321	669728	572058	640412	369794	322046	297824	251646	383784	561601	597801
System Miles	95.51	142.38	622.76	827.24	1019.72	111.96	402.85	1087.40	1054.49	817.57	534.66
Circuit Miles(000)	73094	95357	356265	529775	377085	132672	119377	273540	404697	450372	319619
405 Mbps DIGITAL F0 SYSTEM											
First Cost (\$5000)											
48 fiber F0 Cable	16366	24398	88930	110130	87369	35297	34516	62090	90349	116749	76349
48f Ca Splicing	1107	1650	6016	7991	5910	2388	2335	4200	6112	7898	5165
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	12950	4736	3888
F.O. Mtr/Rcr	4968	4356	3708	4140	2448	2124	1980	1656	3600	3600	28512
F.O. Line Repeater	6624	8712	30900	46920	33456	12036	11220	24288	36120	16848	28512
T/RM Bldg. Power	900	1200	4050	5400	6450	2860	2860	6900	6750	2100	3600
M13 Mux	34170	29910	25560	28590	16530	14400	14400	11250	17160	24630	26700
GRAND TOTAL - FC	65648	72482	169028	224276	168316	75620	72602	127602	175714	210677	152683
\$ per mile (000)	687	509	271	271	165	184	180	117	167	343	286
\$/cct-mi	.90	.76	.47	.42	.45	.57	.61	.47	.43	.53	.48
Annual Cost (\$5000)											
48 fiber F0 Cable	6598	9837	35853	47626	35224	14230	13915	25032	36425	47059	30781
48f Ca Splicing	446	665	2425	3222	2383	963	941	1693	2464	3184	2082
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6794	5221	3414
F.O. Mtr/Rcr	3116	2732	2326	2597	1535	1332	1242	1039	1691	2258	2439
F.O. Line Repeater	4155	5465	19382	29430	20985	7549	7038	15234	24656	24839	10568
T/RM Bldg. Power	360	479	1618	2167	2577	1138	1138	2756	2696	2097	1438
M13 Mux	21433	18761	16032	17933	10368	9032	8355	7056	10763	15449	16140
GRAND TOTAL - AC	36718	38848	81613	108247	79584	36876	35202	59753	89320	100117	74786
\$ per mile (000)	384	273	131	131	78	90	87	55	79	122	140
\$/cct-mi	.50	.41	.23	.20	.21	.28	.29	.22	.21	.22	.23
565 Mbps DIGITAL F0 SYSTEM											
First Cost (\$5000)											
48 fiber F0 Cable	13638	16266	71144	94504	87369	23531	23011	62030	90343	93399	61079
48f Ca Splicing	923	1100	4813	6393	5910	1592	1567	4200	6112	6318	4132
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	12950	4735	8469
F.O. Mtr/Rcr	4326	3822	3234	3654	2100	1848	1722	1470	2184	3150	3444
F.O. Line Repeater	5768	7644	26951	41413	28701	10472	9758	21581	31305	34651	25257
T/RM Bldg. Power	900	1200	4050	5400	6450	2850	2850	6900	6750	2100	3600
M13 Mux	34170	29910	25560	28590	16530	14400	14400	11250	17160	24630	26700
GRAND TOTAL - FC	61236	62198	145616	193058	163213	61219	58598	124659	170583	180349	132681
\$ per mile (000)	641	437	234	233	160	149	145	115	162	221	248
\$/cct-mi	.84	.65	.41	.36	.43	.46	.49	.46	.42	.40	.42
Annual Cost (\$5000)											
48 fiber F0 Cable	5499	6558	28583	38101	35224	9487	9277	25032	36425	37655	24625
48f Ca Splicing	372	444	1340	2577	2383	842	828	1693	2464	2547	1666
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6794	5221	3414
F.O. Mtr/Rcr	2714	2397	2029	2292	1317	1159	1080	922	1370	1976	2160
F.O. Line Repeater	3618	4795	16905	25976	18002	6569	6121	13524	19636	21734	15342
T/RM Bldg. Power	360	479	1618	2157	2577	1138	1138	2756	2696	2097	1438
M13 Mux	21433	18761	16032	17933	10368	9032	8355	7056	10763	15449	16140
GRAND TOTAL - AC	34604	34343	71183	94319	76383	30558	29171	57926	80089	86680	65693
\$ per mile (000)	362	241	114	114	75	74	72	53	76	106	123
\$/cct-mi	.47	.36	.20	.18	.20	.23	.24	.21	.20	.19	.21

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FIGURE 6.17: 15 NODE NETWORK 1965 TRAFFIC, 48f F0 CABLE

Traffic Factor		Route							
Mileage Factor		12-4	12-5	13-8	13-14	14-10	15-1	15-10	Total
405 mbps DIGITAL F0 SYSTEM 25 mi Repeater Spacing									
First Cost (\$000)									
Actual Traffic	136140	36602	64372	80470	164108	54413	1825479		
VF Ccts Req'd	181520	48803	85829	107294	218810	141242	72551		
Initial Fill									
Total VF Circuits	226900	61004	107286	134117	273513	176553	90689	7139292	
System Mileage	681.88	1271.65	786.34	1602.07	407.05	215.50	975.33	13254.87	
Circuit Miles<000>	154719	77575	84363	214864	111334	38047	88451	4095861	
405 mbps DIGITAL F0 SYSTEM 25 mi Repeater Spacing									
First Cost (\$000)									
48 fiber F0 Cable	38949	36318	22458	91510	34876	12309	27855	1057605	
48f Ca Splicing	2636	2467	1519	6190	2359	833	1884	71537	
Cable Installation	10801	20143	12456	25377	6448	3413	15449	209957	
F.O. Rtr/Rcv	1512	432	720	900	1800	1188	612	46764	
F.O. Line Repeater	14112	7344	19500	10200	3564	8160	365796		
I/Rm Bldg. Power	4500	7950	5100	10050	2850	1650	6300	86700	
N13 Rm	10140	2730	4800	6000	12240	7890	4050	318990	
GRAND TOTAL - FC	82649	77374	54732	159527	70773	30847	64311	2167249	
\$ per mile <000>	121	61	70	100	174	143	66	163	
\$/cct-mi	.53	1.00	.65	.74	.64	.81	.73	.53	
Annual Cost (\$000)									
48 fiber F0 Cable	15703	14642	9054	36893	14061	4963	11230	426347	
48f Ca Splicing	1062	991	612	2496	951	336	760	28841	
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647	
F.O. Rtr/Rcv	948	271	452	566	1129	745	384	29332	
F.O. Line Repeater	8852	4606	4817	12231	6398	2235	5118	229442	
I/Rm Bldg. Power	1798	3176	2037	4015	1138	659	2517	34633	
N13 Rm	6360	1712	3011	3763	7677	4949	2540	200083	
GRAND TOTAL - AC	33077	33519	25005	70194	33954	15263	28778	1033326	
\$ per mile <000>	57	26	32	44	83	71	30	78	
\$/cct-mi	.25	.43	.30	.33	.30	.40	.33	.25	
565 mbps DIGITAL F0 SYSTEM 25 mi Repeater Spacing									
First Cost (\$000)									
48 fiber F0 Cable	38949	36318	22458	45755	23251	6155	27855	871270	
48f Ca Splicing	2636	2457	1519	3095	1573	416	1884	58939	
Cable Installation	10801	20143	12456	25377	6448	3413	15449	209957	
F.O. Rtr/Rcv	1344	378	672	798	1554	1008	546	40951	
F.O. Line Repeater	12544	6426	7168	17290	8806	3024	7280	320805	
I/Rm Bldg. Power	4500	7950	5100	10050	2850	1650	6300	86700	
N13 Rm	10140	2730	4800	6000	12240	7890	4050	318990	
GRAND TOTAL - FC	80913	76402	54173	108365	56722	23557	63365	1907612	
\$ per mile <000>	119	60	69	68	139	109	65	144	
\$/cct-mi	.52	.98	.64	.50	.51	.62	.72	.47	
Annual Cost (\$000)									
48 fiber F0 Cable	15703	14642	9054	18447	9374	2481	11230	351264	
48f Ca Splicing	1062	991	612	1248	634	168	760	23762	
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647	
F.O. Rtr/Rcv	843	237	422	501	975	632	342	25686	
F.O. Line Repeater	7866	4031	4496	10845	5524	1897	4566	201222	
I/Rm Bldg. Power	1798	3176	2037	4015	1138	659	2517	34633	
N13 Rm	6360	1712	3011	3763	7677	4949	2540	200083	
GRAND TOTAL - AC	37989	32310	24654	49049	27922	12163	28184	921297	
\$ per mile <000>	56	26	31	31	69	56	29	70	
\$/cct-mi	.25	.42	.29	.23	.25	.32	.32	.22	

FIGURE 6.18: 15 NODE NETWORK 1985 TRAFFIC, 96f FO CABLE

Traffic Factor Mileage Factor		Route											
		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-1	10-11	11-4
Actual Traffic		459192	401837	343236	384247	221876	193228	178694	150987	230270	330960	388329	358681
VF Ccts Req'd		612257	536782	457647	512329	295635	257637	238269	201317	307027	441281	517772	478241
Initial Fill		.6											
Total VF Circuits		765321	659728	572058	640412	369794	322046	297824	251646	383784	551801	647215	597801
System Mileage		95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	298.92	534.66
Circuit Miles (000)		73094	95357	366255	529775	377085	132672	119977	273540	404697	460972	193465	319619
405 Mbps DIGITAL FO SYSTEM 25 mi Repeater Spacing													
First Cost (\$000)		15486	23086	100977	134132	110227	44532	43546	58750	113986	132554	48468	86692
96 fiber FO Cable		1038	1547	6767	8989	7387	2984	2918	3937	7639	8884	3248	5810
96f Ca Splicing		1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735	8469
Cable Installation		4968	4356	3708	4140	2448	2124	1980	1656	2520	3600	4212	3888
F.O. Mtr/Rcvr		8624	8712	30900	45920	39456	12036	11220	24288	36120	39800	16848	28512
F.O. Line Repeater		900	1200	4050	5400	6450	2850	2850	6900	6750	5250	2100	3600
T/Rm Bldg. Power		34170	29910	25560	28590	16530	14400	13320	11250	17150	24630	28920	26700
M13 Mux		64699	71067	181826	241274	192650	85462	82215	124000	200878	227478	108531	153670
GRAND TOTAL - FC		677	499	292	292	189	207	204	114	190	278	363	306
\$ per mile (000)		.89	.75	.51	.46	.51	.64	.69	.45	.60	.50	.56	.51
\$/cct-mi													
Annual Cost (\$000)		8243	9308	40710	54077	44440	17954	17556	23686	45955	53445	19541	34951
96 fiber FO Cable		418	624	2728	3624	2978	1203	1177	1587	3080	3582	1309	2342
96f Ca Splicing		610	909	3977	5283	6512	2631	2573	6942	6794	5221	1909	3414
Cable Installation		3116	2732	2326	2597	1535	1332	1242	1039	1581	2258	2642	2439
F.O. Mtr/Rcvr		4155	5465	19382	29430	20985	7849	7038	15234	22656	24839	10568	17884
F.O. Line Repeater		360	479	1618	2167	2577	1138	1138	2766	2696	2097	839	1438
T/Rm Bldg. Power		21433	18761	16032	17933	10368	9032	8355	7056	10763	15449	18140	16747
M13 Mux		36335	38277	86773	115101	89395	40840	39078	58301	93465	106890	54947	79215
GRAND TOTAL - AC		380	269	139	139	99	99	97	54	89	131	184	148
\$ per mile (000)		.50	.40	.24	.22	.24	.31	.33	.21	.23	.24	.28	.25
\$/cct-mi													
565 Mbps DIGITAL FO SYSTEM 25 mi Repeater Spacing													
First Cost (\$000)		15486	15391	67318	89421	110227	22266	21773	58750	113986	88376	32312	57794
96 fiber FO Cable		1038	1031	4511	5993	7387	1492	1469	3937	7639	5922	2165	3873
96f Ca Splicing		1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735	8469
Cable Installation		4326	3822	3234	3654	2100	1848	1722	1470	2184	3150	3696	3444
F.O. Mtr/Rcvr		5768	7644	26951	41413	28701	10472	9758	21561	31305	34551	14784	25257
F.O. Line Repeater		900	1200	4050	5400	6450	2850	2850	6900	6750	5250	2100	3600
T/Rm Bldg. Power		34170	29910	25560	28590	16530	14400	13320	11250	17150	24630	28920	26700
M13 Mux		63201	61254	141488	187575	187547	59854	57263	121086	196727	174930	88713	129137
GRAND TOTAL - FC		662	430	227	227	184	145	142	111	186	214	297	242
\$ per mile (000)		.86	.64	.40	.35	.50	.45	.48	.44	.48	.39	.46	.40
\$/cct-mi													
Annual Cost (\$000)		8243	6205	27140	36051	44440	8977	8778	23686	45955	36630	13027	23301
96 fiber FO Cable		418	416	1819	2416	2978	602	588	1587	3080	2388	873	1561
96f Ca Splicing		610	909	3977	5283	6512	2631	2573	6942	6794	5221	1909	3414
Cable Installation		2714	2397	2029	2292	1317	1159	1080	922	1370	1976	2318	2160
F.O. Mtr/Rcvr		3618	4795	16905	25976	18002	6569	6121	13524	19636	21734	9273	15842
F.O. Line Repeater		360	479	1518	2157	2577	1138	1138	2756	2696	2097	839	1438
T/Rm Bldg. Power		21433	18761	16032	17933	10368	9032	8355	7056	10763	15449	18140	16747
M13 Mux		35396	33962	69519	92108	86194	30108	28633	56473	90234	84495	46379	64464
GRAND TOTAL - AC		371	239	112	111	85	73	71	52	86	103	155	121
\$ per mile (000)		.48	.36	.20	.17	.23	.23	.24	.21	.22	.19	.24	.20
\$/cct-mi													

FIGURE 6.10: 15 NODE NETWORK

15 NODE NETWORK		1985 TRAFFIC, 96f FO CABLE					
Traffic Factor	.684						
Mileage Factor	1.15						
Route	12-4	12-5	13-8	13-14	14-10	15-1	Total
Actual Traffic	136140	36502	64372	80470	164108	106932	54413
VF Ccts Req'd	181620	48803	86829	107294	218810	141242	72551
Initial Fill							
Total VF Circuits	226900	61004	107296	134117	273513	176553	90689
System Mileage	681.88	1271.55	786.34	1502.07	407.05	215.50	975.33
Circuit Miles(000)	154719	77575	84363	214864	111334	36047	68461
405 mbps DIGITAL FO SYSTEM	25 mi Repeater Spacing						
First Cost (\$000)							
96 fiber FO Cable	36854	68730	42500	86588	44001	11647	52714
96f Ca Splicing	2470	4506	2848	5803	2943	781	3533
Cable Installation	10801	20143	12456	25377	6448	3413	15449
F.O. Mtr/Rcvr	1512	432	720	900	1800	1188	612
F.O. Line Repeater	14112	7344	7680	19500	10200	3554	8160
T/RM Bldg, Power	4500	7950	6100	10050	2850	1550	6300
M13 Mux	10140	2730	4800	6000	12240	7890	31890
GRAND TOTAL - FC	80389	111935	76104	154218	80487	30133	90918
\$ per mile (000)	118	88	97	96	198	140	93
\$/cct-mi	.52	1.44	.90	.72	.72	.79	1.03
Annual Cost (\$000)							
96 fiber FO Cable	14858	27709	17134	34909	17740	4596	21253
96f Ca Splicing	996	1857	1148	2339	1189	315	1424
Cable Installation	4355	8121	5022	10231	2593	1376	6229
F.O. Mtr/Rcvr	948	271	452	555	1123	745	384
F.O. Line Repeater	8852	4506	4817	12231	6398	2235	5118
T/RM Bldg, Power	1798	3176	2037	4015	1138	659	2517
M13 Mux	6360	1712	3011	3763	7677	4949	34633
GRAND TOTAL - AC	38166	47453	33621	68053	37871	14975	2540
\$ per mile (000)	56	37	43	42	93	69	84
\$/cct-mi	.25	.61	.40	.32	.34	.39	.27
565 mbps DIGITAL FO SYSTEM	25 mi Repeater Spacing						
First Cost (\$000)							
96 fiber FO Cable	36854	68730	42500	86588	22000	11647	52714
96f Ca Splicing	2470	4506	2848	5803	1474	781	3533
Cable Installation	10801	20143	12456	25377	6448	3413	15449
F.O. Mtr/Rcvr	1344	378	572	798	1554	1008	546
F.O. Line Repeater	12544	6426	7168	17230	8806	3024	7280
T/RM Bldg, Power	4500	7950	6100	10050	2850	1550	6300
M13 Mux	10140	2730	4800	6000	12240	7890	31890
GRAND TOTAL - FC	78653	110963	75544	151906	56373	29413	89872
\$ per mile (000)	115	87	96	95	136	136	92
\$/cct-mi	.51	1.43	.90	.71	.50	.77	1.02
Annual Cost (\$000)							
96 fiber FO Cable	14858	27709	17134	34909	8870	4596	21253
96f Ca Splicing	996	1857	1148	2339	594	315	1424
Cable Installation	4355	8121	5022	10231	2593	1376	6229
F.O. Mtr/Rcvr	843	237	422	501	975	532	342
F.O. Line Repeater	7868	4031	4496	10845	5524	1897	4566
T/RM Bldg, Power	1798	3176	2037	4015	1138	659	2517
M13 Mux	6360	1712	3011	3763	7677	4949	34633
GRAND TOTAL - AC	37078	46843	33270	66604	27378	14524	36871
\$ per mile (000)	54	37	42	42	67	67	40
\$/cct-mi	.24	.60	.39	.31	.25	.38	.44
							137.62

FIGURE 6.19: 15 MODE NETWORK 1990 TRAFFIC, 48f FO CABLE

Traffic Factor Mileage Factor	1-2	2-3	3-4	4-5	5-6	6-7	7-8	9-9	9-10	10-1	10-11	11-4
Route												
Actual Traffic	765321	669728	572058	640412	367994	322046	297824	251646	383784	551601	647215	597801
VF Ccts Req	1020428	892971	762745	853882	493059	429395	397098	335528	511712	735468	862954	797069
Initial Fill	-8											
Total VF Circuits	1275535	1116214	953431	1067353	616323	536744	496373	419409	639640	919335	1078692	996336
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	298.92	534.66
Circuit Miles(000)	121823	158928	593758	882958	628475	221120	199961	455899	674495	751620	322442	532699
810 mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing												
First Cost (\$000)												
48 fiber FO Cable	8183	12199	35572	70878	58246	23531	11505	31045	60233	46700	25611	30540
48f Ca Splicing	554	825	2406	4795	3940	1592	778	2100	4075	3159	1733	2066
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735	8469
F.O. Mtr/Rcvr	3654	3213	2772	3087	1827	1575	1449	1260	1890	2709	3087	2898
F.O. Line Repeater	2436	3213	12012	17493	12789	4725	4347	9240	13860	15351	6174	10626
T/RM Bldg, Power	600	750	2250	2850	3450	1650	1650	3600	3600	2850	1200	1950
M13 Mux	99698	87255	74498	83423	48195	41948	38798	32813	49980	71873	84315	77858
GRAND TOTAL - FC	116637	109711	139374	195629	144600	81546	64908	97276	150340	155591	126855	134406
\$ per mile (000)	1221	771	224	236	142	198	161	89	143	190	424	251
\$/cct-mi	.96	.69	.23	.22	.23	.37	.32	.21	.22	.21	.39	.25
Annual Cost (\$000)												
48 fiber FO Cable	3299	4918	14341	28575	23483	9487	4638	12516	24284	18828	10326	12312
48f Ca Splicing	223	333	970	1933	1589	642	314	847	1643	1274	698	833
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414
F.O. Mtr/Rcvr	2292	2015	1739	1936	1146	988	909	790	1185	1699	1936	1818
F.O. Line Repeater	1528	2015	7534	10972	8022	2964	2727	5796	8694	9629	3873	6665
T/RM Bldg, Power	240	300	899	1138	1378	659	659	1438	1438	1138	479	779
M13 Mux	62534	54730	46728	52326	30230	26311	24335	20581	31349	45081	52886	48835
GRAND TOTAL - AC	70726	65220	76188	102164	72359	43681	36155	48910	75327	82870	72107	74657
\$ per mile (000)	741	458	122	123	71	106	90	45	71	101	241	140
\$/cct-mi	.58	.41	.13	.12	.12	.20	.18	.11	.11	.11	.22	.14
1.7 Gbps DIGITAL FO SYSTEM 50 mi Repeater Spacing												
First Cost (\$000)												
48 fiber FO Cable	5455	8133	17786	47252	29123	11766	11505	31045	30116	23350	17074	15270
48f Ca Splicing	369	550	1203	3196	1970	796	778	2100	2037	1580	1155	1033
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735	8469
F.O. Mtr/Rcvr	3780	3276	2772	3150	1890	1638	1512	1260	2016	2772	3150	2898
F.O. Line Repeater	2520	3276	12012	17850	13230	4914	4536	9240	14784	15708	6300	10626
T/RM Bldg, Power	600	750	2250	2850	3450	1650	1650	3600	3600	2850	1200	1950
M13 Mux	99698	87255	74498	83423	48195	41948	38798	32813	49980	71873	84315	77858
GRAND TOTAL - FC	113935	105495	120385	170824	114011	69237	65160	97276	119237	131082	117929	118103
\$ per mile (000)	1193	741	193	206	112	168	162	89	113	160	395	221
\$/cct-mi	.94	.66	.20	.19	.18	.31	.33	.21	.18	.17	.37	.22
Annual Cost (\$000)												
48 fiber FO Cable	2199	3279	7171	19050	11741	4743	4638	12516	12142	9414	6884	6156
48f Ca Splicing	149	222	485	1289	794	321	314	847	821	637	466	416
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414
F.O. Mtr/Rcvr	2371	2055	1739	1976	1185	1027	948	790	1265	1739	1976	1818
F.O. Line Repeater	1581	2055	7534	11196	8298	3082	2845	5796	9273	9853	3952	6665
T/RM Bldg, Power	240	300	899	1138	1378	659	659	1438	1438	1138	479	779
M13 Mux	62534	54730	46728	52326	30230	26311	24335	20581	31349	45081	52886	48835
GRAND TOTAL - AC	69684	63549	68532	92258	60139	38775	36313	48910	63022	73083	68551	68084
\$ per mile (000)	730	446	110	112	59	94	90	45	60	89	229	127
\$/cct-mi	.57	.40	.12	.10	.10	.18	.18	.11	.09	.10	.21	.13

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FIGURE 6.19: 15 NODE NETWORK 1990 TRAFFIC, 48f FO CABLE

Traffic Factor Mileage Factor	15 NODE NETWORK									
	Route	12-4	12-5	13-8	13-14	14-10	15-1	15-10	Total	
Actual Traffic		226900	61004	107286	134117	273513	176553	90689	3042466	
VF Ccts Req'd		302534	81338	143049	178823	364684	235404	120918		
Initial Fill										
Total VF Circuits		378167	101673	178811	223528	455854	294255	151148	11898820	
System Mileage		681.86	1271.65	786.34	1602.07	407.05	215.50	975.33	13254.87	
Circuit Miles(000)		257865	129292	140605	358107	185557	63411	147419	6826435	
910 mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing										
First Cost (\$000)		19475	36318	22458	45755	11625	6155	27855	583884	
48 fiber FO Cable		1317	2457	1519	3095	786	416	1884	39498	
Cable Installation		10801	20143	12456	25377	6448	3413	15449	209957	
F.O. Mtr/Rcvr		1134	378	567	693	1323	945	504	34965	
F.O. Line Repeater		5292	3276	3024	7623	3969	1575	3360	140385	
T/Rm Bldg. Power		2400	4200	2700	5250	1650	1050	3300	46950	
M13 Mun		29558	7980	14018	17483	35648	22995	11813	930143	
GRAND TOTAL - FC		69976	74752	56741	105275	61449	36549	64165	1985782	
\$ per mile (000)		103	59	72	66	151	170	66	150	
\$/cct-mi		.27	.58	.40	.29	.33	.58	.44	.29	
Annual Cost (\$000)		7851	14642	9054	18447	4687	2481	11230	235401	
48 fiber FO Cable		531	991	612	1248	317	168	760	15924	
Cable Installation		4355	8121	5022	10231	2599	1376	6229	84647	
F.O. Mtr/Rcvr		711	237	356	435	830	593	316	21931	
F.O. Line Repeater		3319	2055	1897	4781	2490	988	2108	88055	
T/Rm Bldg. Power		959	1678	1079	2097	659	419	1318	18755	
M13 Mun		18540	5005	8792	10966	22360	14423	7409	583422	
GRAND TOTAL - AC		36266	32729	26812	48205	33941	20449	29370	1048135	
\$ per mile (000)		53	26	34	30	83	95	30	79	
\$/cct-mi		.14	.25	.19	.13	.18	.32	.20	.15	
1.7 Gbps DIGITAL FO SYSTEM 50 mi Repeater Spacing										
First Cost (\$000)		19475	36318	22458	45755	11625	6155	27855	417516	
48 fiber FO Cable		1317	2457	1519	3095	786	416	1884	28244	
Cable Installation		10801	20143	12456	25377	6448	3413	15449	209957	
F.O. Mtr/Rcvr		1134	504	630	756	1386	1008	630	36162	
F.O. Line Repeater		5292	4368	3360	8316	4158	1680	4200	146370	
T/Rm Bldg. Power		2400	4200	2700	5250	1650	1050	3300	46950	
M13 Mun		29558	7980	14018	17483	35648	22995	11813	930143	
GRAND TOTAL - FC		69976	75970	57140	106031	61701	36717	65131	1815342	
\$ per mile (000)		103	60	73	66	152	170	67	137	
\$/cct-mi		.27	.59	.41	.30	.33	.58	.44	.27	
Annual Cost (\$000)		7851	14642	9054	18447	4687	2481	11230	168327	
48 fiber FO Cable		531	991	612	1248	317	168	760	11387	
Cable Installation		4355	8121	5022	10231	2599	1376	6229	84647	
F.O. Mtr/Rcvr		711	316	395	474	869	632	395	22682	
F.O. Line Repeater		3319	2740	2108	5216	2608	1054	2634	91809	
T/Rm Bldg. Power		959	1678	1079	2097	659	419	1318	18755	
M13 Mun		18540	5005	8792	10966	22360	14423	7409	583422	
GRAND TOTAL - AC		36266	33493	27062	48679	34100	20554	29976	981029	
\$ per mile (000)		53	26	34	30	84	95	31	74	
\$/cct-mi		.14	.26	.19	.14	.18	.32	.20	.14	

FIGURE 6.20: 15 NODE NETWORK 1990 TRAFFIC, 96f FO CABLE

Traffic Factor Mileage Factor	1.14 1.15						
Route	12-4	12-5	13-8	13-14	14-10	15-1	Total
Actual Traffic	226900	61004	107286	134117	273513	176553	90689
VF Ccts Req'd	302534	81338	143049	178823	364684	235404	120918
Initial Fill							
Total VF Circuits	378167	101673	178811	223528	455854	294255	151148
System Mileage	681.88	1271.65	786.34	1602.07	407.05	215.50	975.33
Circuit Miles(000)	257865	129292	140605	358107	185557	63411	6826435
810 mbps DIGITAL FO SYSTEM							
First Cost (\$000)	36854	68730	42500	86588	22000	11647	790123
96 fiber FO Cable	2470	4606	2848	5803	1474	781	3533
96f Ca Splicing	10801	20143	12456	25377	6448	3413	15449
Cable Installation	1134	378	567	693	1323	945	504
F.O. Mtr/Rcvr	5292	3276	3024	7623	3969	1575	3360
F.O. Line Repeater	2400	4200	2700	5250	1650	1050	3300
T/Rm Bldng, Power	29558	7980	14018	17483	35648	22995	11813
M13 Num	88509	109313	78112	148816	72512	42406	90673
GRAND TOTAL - FC	130	86	99	93	178	197	93
\$ per mile (000)	.34	.85	.56	.42	.39	.67	.62
\$/cct-mi							
Annual Cost (\$000)	14858	27709	17134	34909	8870	4696	318549
96 fiber FO Cable	996	1857	1148	2339	594	315	1424
96f Ca Splicing	4355	8121	5022	10231	2599	1376	6229
Cable Installation	711	237	366	435	830	593	316
F.O. Mtr/Rcvr	3319	2055	1897	4781	2490	988	2108
F.O. Line Repeater	959	1678	1079	2097	659	419	1318
T/Rm Bldng, Power	18540	5005	8792	10966	22360	14423	7409
M13 Num	43738	46662	35428	65759	38402	22810	40056
GRAND TOTAL - AC	64	37	45	41	94	106	41
\$ per mile (000)	.17	.36	.25	.18	.21	.36	.27
\$/cct-mi							
1.7 Gbps DIGITAL FO SYSTEM							
First Cost (\$000)	36854	68730	42500	86588	22000	11647	716399
96 fiber FO Cable	2470	4606	2848	5803	1474	781	3533
96f Ca Splicing	10801	20143	12456	25377	6448	3413	15449
Cable Installation	1134	504	630	756	1386	1008	630
F.O. Mtr/Rcvr	5292	4368	3360	8316	4158	1680	36162
F.O. Line Repeater	2400	4200	2700	5250	1650	1050	3300
T/Rm Bldng, Power	29558	7980	14018	17483	35648	22995	11813
M13 Num	88509	110531	78511	149572	72764	42574	91639
GRAND TOTAL - FC	130	87	100	93	179	198	94
\$ per mile (000)	.34	.85	.56	.42	.39	.67	.62
\$/cct-mi							
Annual Cost (\$000)	14858	27709	17134	34909	8870	4696	288826
96 fiber FO Cable	996	1857	1148	2339	594	315	1424
96f Ca Splicing	4355	8121	5022	10231	2599	1376	6229
Cable Installation	711	316	395	474	869	632	395
F.O. Mtr/Rcvr	3319	2740	2108	5216	2608	1054	2634
F.O. Line Repeater	959	1678	1079	2097	659	419	1318
T/Rm Bldng, Power	18540	5005	8792	10966	22360	14423	7409
M13 Num	43738	47426	35678	66233	38560	22915	40662
GRAND TOTAL - AC	64	37	45	41	95	106	42
\$ per mile (000)	.17	.37	.25	.18	.21	.36	.28
\$/cct-mi							

1995 TRAFFIC, 48f FO CABLE

15 NODE NETWORK

FIGURE 6.21:

Traffic Factor Mileage Factor	Route										
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4
1.955											
1.15											
Actual Traffic	1312458	1148525	981030	1098250	634164	552281	510742	431550	658156	1109918	1025177
UF Ccts Req'd	1749944	1531367	1308040	1464333	845552	736375	680989	575400	877541	1261263	1366903
Initial Fill											
Total VF Circuits	2187430	1914208	1635050	1830416	1056940	920466	851236	719250	1096926	1576578	1849863
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.87	298.92
Circuit Miles(000)	208916	272548	1018243	1514195	1077779	379201	342916	781827	1156700	1288962	552960
1.7 Gbps DIGITAL FO SYSTEM											
100 mi Repeater Spacing											
First Cost (\$000)											
48 fiber FO Cable	8183	8133	35572	47252	29123	11766	11505	31045	60233	46700	17074
48f Ca Splicing	554	550	2406	3196	1970	796	778	2100	4075	3159	1155
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735
F.O. Ntr/Rcvr	6300	5544	4662	5292	3024	2772	2520	2142	3150	4536	4914
F.O. Line Repeater	2100	3696	10878	15876	11088	4620	4200	7854	11550	13608	5418
T/RM Bldg. Power	450	600	1350	1650	1950	1050	1050	1950	1950	1650	750
M13 Mux	170940	149573	127785	143010	82583	71925	66518	56228	85733	123218	144533
GRAND TOTAL - FC	190039	170351	192518	223380	145890	99454	92952	118537	183393	205820	179083
\$ per mile (000)	1900	1196	309	277	143	241	231	109	174	252	356
\$/cct-mi	.91	.63	.19	.15	.14	.26	.27	.15	.16	.16	.21
Annual Cost (\$000)											
48 fiber FO Cable	3299	3279	14341	19050	11741	4743	4638	12516	24284	18828	6884
48f Ca Splicing	223	222	970	1289	794	321	314	847	1643	1274	466
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909
F.O. Ntr/Rcvr	3952	3477	2924	3319	1897	1739	1581	1344	1976	2845	3398
F.O. Line Repeater	1317	2318	6823	9958	6955	2898	2634	4926	7245	8535	6165
T/RM Bldg. Power	180	240	539	659	779	419	419	779	779	659	300
M13 Mux	107220	93818	80152	89702	51799	45114	41722	35268	53775	77287	90657
GRAND TOTAL - RC	116801	104263	109727	129260	80477	57865	53882	62621	96435	114649	107011
\$ per mile (000)	1223	732	176	156	79	140	134	58	91	140	358
\$/cct-mi	.56	.38	.11	.09	.07	.15	.16	.08	.08	.09	.12
4.05 Gbps DIGITAL FO SYSTEM											
100 mi Repeater Spacing											
First Cost (\$000)											
48 fiber FO Cable	2728	4066	17786	23626	29123	11766	11505	31045	30116	23350	8537
48f Ca Splicing	185	275	1203	1598	1970	796	778	2100	2037	1560	578
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735
F.O. Ntr/Rcvr	6615	5670	5040	5670	3150	2835	2835	2205	3465	5040	5670
F.O. Line Repeater	2205	3780	11760	17010	11550	4725	4050	8085	12705	15120	5670
T/RM Bldg. Power	450	600	1350	1650	1950	1050	1050	1950	1950	1650	750
M13 Mux	170940	149573	127785	143010	82583	71925	66518	56228	85733	123218	144533
GRAND TOTAL - FC	184635	166219	174789	205668	146478	99622	93792	118831	152709	182907	170472
\$ per mile (000)	1933	1167	281	249	144	242	233	109	145	224	328
\$/cct-mi	.88	.61	.17	.14	.14	.26	.27	.15	.13	.14	.19
Annual Cost (\$000)											
48 fiber FO Cable	1100	1639	7171	9525	11741	4743	4638	12516	12142	9414	3442
48f Ca Splicing	74	111	485	644	794	321	314	847	821	637	233
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909
F.O. Ntr/Rcvr	4149	3556	3161	3556	1976	1778	1778	1383	2173	3161	3359
F.O. Line Repeater	1383	2371	7376	10569	7245	2964	2964	5071	7969	9464	3556
T/RM Bldg. Power	180	240	539	659	779	419	419	779	779	659	300
M13 Mux	107220	93818	80152	89702	51799	45114	41722	35268	53775	77287	90657
GRAND TOTAL - RC	114716	102644	102861	120039	80846	57971	54409	62806	84393	105863	103653
\$ per mile (000)	1201	721	165	145	79	141	135	58	80	129	195
\$/cct-mi	.55	.38	.10	.08	.08	.15	.16	.08	.07	.08	.11

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FIGURE 6.21: 15 NODE NETWORK 1995 TRAFFIC, 48f FO CABLE

1.955
1.15

Route	12-4	12-5	13-8	13-14	14-10	15-1	15-10	Total
Actual Traffic	309114	104616	103987	229999	469050	302773	155523	5217561
VF Ccts Req'd	518819	139488	245316	306665	625400	403697	207365	
Initial Fill								
Total VF Circuits	648523	174360	306645	383332	781750	504621	259206	20405432
System Mileage	681.88	1271.65	786.34	1602.07	407.05	215.50	975.33	13254.87
Circuit Miles(000)	442216	221724	241126	614122	318215	108745	252810	11706737

1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$000)	19475	36318	22458	45755	11625	6155	27855	506766
48 fiber FO Cable	1317	2457	1519	3095	786	416	1884	34281
48f Ca Splicing	10801	20143	12456	25377	6448	3413	15449	209957
Cable Installation	2016	630	1008	1134	2394	1512	882	59850
F.O. Ntr/Rcvr	4704	2730	2688	6426	3990	1512	2940	125706
F.O. Line Repeater	1350	2250	1500	2850	1050	750	1800	27150
T/Rm Bldg. Power	50715	13650	23993	29978	61110	39428	20265	1594688
M13 Mux	90378	78178	65621	114614	87404	53186	71076	2558398
GRAND TOTAL - FC	133	61	83	72	215	247	73	193
\$ per mile (000)	.20	.35	.27	.19	.27	.49	.28	.22
\$/cct-mi								

Annual Cost (\$000)	7851	14642	9054	18447	4687	2481	11230	204309
48 fiber FO Cable	531	991	612	1248	317	168	760	13821
48f Ca Splicing	4355	8121	5022	10231	2599	1376	6229	84647
Cable Installation	1265	395	632	711	1502	948	553	37540
F.O. Ntr/Rcvr	2951	1712	1686	4031	2503	948	1844	78848
F.O. Line Repeater	539	899	599	1138	419	300	719	10845
T/Rm Bldg. Power	31810	8562	15049	18803	38331	24730	12711	1000251
M13 Mux	49302	35322	32655	54609	50356	30952	34046	1430262
GRAND TOTAL - AC	72	28	42	34	124	144	35	108
\$ per mile (000)	.11	.16	.14	.09	.16	.28	.13	.12
\$/cct-mi								

4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$000)	19475	36318	22458	45755	11625	6155	27855	378559
48 fiber FO Cable	1317	2457	1519	3095	786	416	1884	25608
48f Ca Splicing	10801	20143	12456	25377	6448	3413	15449	209957
Cable Installation	2205	945	1260	1575	2520	1890	1260	65205
F.O. Ntr/Rcvr	5145	4095	3360	8925	4200	1890	4200	139860
F.O. Line Repeater	1350	2250	1500	2850	1050	750	1800	27150
T/Rm Bldg. Power	50715	13650	23993	29978	61110	39428	20265	1594688
M13 Mux	91008	79858	66545	117554	87740	53942	72714	2441027
GRAND TOTAL - FC	133	63	85	73	216	250	75	184
\$ per mile (000)	.21	.36	.28	.19	.28	.50	.29	.21
\$/cct-mi								

Annual Cost (\$000)	7851	14642	9054	18447	4687	2481	11230	152621
48 fiber FO Cable	531	991	612	1248	317	168	760	10324
48f Ca Splicing	4355	8121	5022	10231	2599	1376	6229	84647
Cable Installation	1383	593	790	988	1581	1185	790	40899
F.O. Ntr/Rcvr	3227	2569	2108	5598	2634	1185	2634	87726
F.O. Line Repeater	539	899	599	1138	419	300	719	10845
T/Rm Bldg. Power	31810	8562	15049	18803	38331	24730	12711	1000251
M13 Mux	49697	36375	33234	56453	50569	31426	35073	1387314
GRAND TOTAL - AC	73	29	42	35	124	146	36	105
\$ per mile (000)	.11	.16	.14	.09	.16	.29	.14	.12
\$/cct-mi								

1995 TRAFFIC, 96 FFO CABLE

15 NODE NETWORK

FIGURE 6.22:

Traffic Factor Mileage Factor	100 mi Repeater Spacing										
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
1312458	1140525	981030	1090250	634164	552201	510742	431550	658156	946947	1109910	1025177
1749944	1531367	1306040	1464333	845552	736375	680989	575400	877541	1261263	1474090	1366903
2187430	1914208	1635050	1830416	1056940	920469	851236	719250	1096926	1576578	1849063	1708628
95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	298.92	534.66
208916	272548	1016243	1514195	1077779	379201	342916	781827	1156700	1268962	552960	913532
1.7 Gbps DIGITAL F0 SYSTEM											
First Cost (\$000)	10324	7695	33659	44711	55114	22266	21773	58750	56993	44188	16156
96 fiber F0 Cable	692	516	2296	2996	3693	1492	1459	3937	3819	2961	1083
96f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735
Cable Installation	6300	5544	4652	5292	3024	2772	2520	2142	3150	4536	4914
F.O. Mtr/Rcur	2100	3696	10878	15876	11088	4620	4200	7854	11550	13608	9828
I/Rw Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	1650	1200
M13 Num	170940	149573	127785	143010	82583	71925	66518	56228	85733	123218	133508
GRAND TOTAL - FC	192319	169879	190454	226638	173604	110651	103901	148079	179898	203111	176092
\$ per mile (000)	2014	1193	306	274	170	269	258	136	171	248	353
\$/cct-mi	.92	.62	.19	.15	.16	.29	.30	.19	.16	.16	.32
Annual Cost (\$000)	4162	3103	13570	18026	22220	8977	8778	23686	22978	17815	11650
96 fiber F0 Cable	279	208	909	1208	1489	602	588	1587	1540	1194	781
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909
Cable Installation	3952	3477	2924	3319	1897	1739	1581	1344	1976	2845	3082
F.O. Mtr/Rcur	1317	2318	6823	9958	6955	2898	2634	4926	7245	8535	6165
I/Rw Bldg, Power	180	240	539	659	779	419	419	779	779	659	479
M13 Num	107220	93818	80152	89702	51799	45114	41722	35268	53775	77287	83741
GRAND TOTAL - AC	117720	104073	108895	128155	91650	62379	58296	74532	95026	113557	109313
\$ per mile (000)	1233	731	175	155	90	151	145	69	90	139	204
\$/cct-mi	.56	.38	.11	.08	.09	.16	.17	.10	.08	.09	.12
4.05 Gbps DIGITAL F0 SYSTEM											
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	16156
96 fiber F0 Cable	346	516	2256	2996	3693	1492	1459	3937	3819	2961	1083
96f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735
Cable Installation	6615	5670	5040	5670	3150	2835	2835	2205	3465	5040	5355
F.O. Mtr/Rcur	2205	3780	11760	17010	11550	4725	4725	8085	12705	15120	10710
I/Rw Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	1650	1200
M13 Num	170940	149573	127785	143010	82583	71925	66518	56228	85733	123218	133508
GRAND TOTAL - FC	182331	170089	191714	228150	174192	110819	104741	148373	181368	205127	176596
\$ per mile (000)	1960	1195	308	276	171	269	260	136	172	251	356
\$/cct-mi	.90	.62	.19	.15	.16	.29	.31	.19	.16	.16	.32
Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	17815	11650
96 fiber F0 Cable	139	208	909	1208	1489	602	588	1587	1540	1194	781
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909
Cable Installation	4149	3556	3161	3556	1976	1778	1778	1383	2173	3161	3359
F.O. Mtr/Rcur	1383	2371	7376	10669	7245	2964	2964	5071	7969	9484	6718
I/Rw Bldg, Power	180	240	539	659	779	419	419	779	779	659	479
M13 Num	107220	93818	80152	89702	51799	45114	41722	35268	53775	77287	83741
GRAND TOTAL - AC	115763	104205	109685	129103	92019	62485	58823	74716	95948	114821	110143
\$ per mile (000)	1212	732	176	156	90	152	146	69	91	140	206
\$/cct-mi	.55	.38	.11	.09	.09	.16	.17	.10	.08	.09	.19

FIGURE 6.22: 15 NODE NETWORK 1995 TRAFFIC, 96f F0 CABLE

Traffic Factor Mileage Factor	1995 TRAFFIC, 96f F0 CABLE									
	1.955	1.15	12-4	12-5	13-8	13-14	14-10	15-1	15-10	Total
Route										
Actual Traffic	389114	104616	183987	229999	469050	302773	155523			
VF Ccts Req'd	518819	139488	245316	306665	625400	403697	207365			
Initial Fill										
Total VF Circuits	648523	174360	306645	383332	781750	504621	259206	20405432		
System Mileage	681.88	1271.65	786.34	1602.07	407.05	215.50	975.33	13254.87		
Circuit Miles(000)	442216	221724	241126	614122	318215	108745	252810	11706737		
1.7 Gbps DIGITAL F0 SYSTEM 100 mi Repeater Spacing										
First Cost (\$000)	36854	68730	42500	86588	22000	11647	52714	721561		
96 fiber F0 Cable	2470	4606	2848	5803	1474	781	3533	48355		
96f Ca Splicing	10801	20143	12456	25377	6448	3413	15449	209957		
Cable Installation	2016	630	1008	1134	2394	1512	882	59850		
F.O. Mtr/Rcur	4704	2730	2688	6426	3990	1512	2940	125706		
F.O. Line Repeater	1350	2250	1500	2850	1050	750	1800	27150		
T/Rm Bldng, Power	50715	13650	23993	29978	61110	39428	20265	1594688		
M13 Mux	108910	112739	86992	158155	98467	59043	97583	2787267		
GRAND TOTAL - FC	160	89	111	99	242	274	100	210		
\$ per mile (000)	.25	.51	.36	.26	.31	.54	.39	.24		
\$/cct-mi										
Annual Cost (\$000)										
96 fiber F0 Cable	14858	27709	17134	34909	8670	4696	21253	290907		
96f Ca Splicing	996	1857	1148	2339	594	315	1424	19495		
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647		
F.O. Mtr/Rcur	1265	395	632	711	1502	948	553	37540		
F.O. Line Repeater	2951	1712	1686	4031	2503	948	1844	78848		
T/Rm Bldng, Power	539	899	599	1138	419	300	719	10845		
M13 Mux	31810	8562	15049	18803	38331	24730	12711	1000251		
GRAND TOTAL - AC	56773	49255	41271	72163	54818	33313	44733	1522533		
\$ per mile (000)	.83	39	52	45	135	155	46	115		
\$/cct-mi	.13	.22	.17	.12	.17	.31	.18	.13		
4.05 Gbps DIGITAL F0 SYSTEM 100 mi Repeater Spacing										
First Cost (\$000)	36854	68730	42500	86588	22000	11647	52714	716399		
96 fiber F0 Cable	2470	4606	2848	5803	1474	781	3533	48009		
96f Ca Splicing	10801	20143	12456	25377	6448	3413	15449	209957		
Cable Installation	2205	945	1260	1575	2520	1890	1260	65205		
F.O. Mtr/Rcur	5145	4095	3360	8925	4200	1890	4200	139860		
F.O. Line Repeater	1350	2250	1500	2850	1050	750	1800	27150		
T/Rm Bldng, Power	50715	13650	23993	29978	61110	39428	20265	1594688		
M13 Mux	109540	114419	87916	161095	98803	59799	99221	2801268		
GRAND TOTAL - FC	161	90	112	101	243	277	102	211		
\$ per mile (000)	.25	.52	.36	.26	.31	.55	.39	.24		
\$/cct-mi										
Annual Cost (\$000)										
96 fiber F0 Cable	14858	27709	17134	34909	8670	4696	21253	288826		
96f Ca Splicing	996	1857	1148	2339	594	315	1424	19356		
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647		
F.O. Mtr/Rcur	1383	593	790	988	1581	1185	790	40899		
F.O. Line Repeater	3227	2569	2108	5598	2634	1185	2634	87726		
T/Rm Bldng, Power	539	899	599	1138	419	300	719	10845		
M13 Mux	31810	8562	15049	18803	38331	24730	12711	1000251		
GRAND TOTAL - AC	57169	50309	41850	74007	55029	33788	45760	1532550		
\$ per mile (000)	.84	40	53	46	135	157	47	116		
\$/cct-mi	.13	.23	.17	.12	.17	.31	.18	.13		

FIGURE 6.23:

Traffic Factor Mileage Factor		100 mi Repeater Spacing										100 mi Repeater Spacing															
Route		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-1	10-11	11-4														
Actual Traffic:		1706195	1493082	1275339	1427724	824413	717966	663964	561015	855602	1229731	1442893	1332730														
UV Ccts Req'd		2274927	1990777	1700452	1903633	1099218	957288	865285	748020	1140803	1639641	1923857	1776973														
Initial Fill		2843659	2488471	2125565	2379541	1374022	1196610	1106607	935025	1426004	2049552	2404822	2221217														
Total VF Circuits		95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	298.92	534.66														
System Mileage		271591	354312	1323716	1968454	1401113	492961	445791	1016375	1503710	1675651	718848	1187591														
Circuit Miles(000)																											
1.7 Gbps DIGITAL F0 SYSTEM														4.05 Gbps DIGITAL F0 SYSTEM													
First Cost (\$000)														First Cost (\$000)													
48 fiber F0 Cable														48 fiber F0 Cable													
8183														3299													
554														223													
554														223													
48f Ca Splicing														48f Ca Splicing													
1513														610													
8064														4505													
2688														3003													
F.O. Ltr/Rcvr														F.O. Ltr/Rcvr													
450														180													
I/RM Bldg, Power														I/RM Bldg, Power													
222180														139360													
243631														150416													
2551														1575													
GRAND TOTAL - FC														GRAND TOTAL - AC													
1561														938													
378														219													
\$ per mile (000)														\$ per mile (000)													
.63														.38													
\$/cct-mi														\$/cct-mi													
.90														.55													
Annual Cost (\$000)														Annual Cost (\$000)													
48 fiber F0 Cable														48 fiber F0 Cable													
8183														3299													
554														223													
554														223													
48f Ca Splicing														48f Ca Splicing													
1513														610													
8064														4505													
2688														3003													
F.O. Ltr/Rcvr														F.O. Ltr/Rcvr													
450														180													
I/RM Bldg, Power														I/RM Bldg, Power													
222180														139360													
240887														1501													
GRAND TOTAL - FC														GRAND TOTAL - AC													
2522														930													
\$ per mile (000)														\$ per mile (000)													
.89														.37													
\$/cct-mi														\$/cct-mi													
.55														.55													
Annual Cost (\$000)														Annual Cost (\$000)													
48 fiber F0 Cable														48 fiber F0 Cable													
8183														3299													
554														223													
554														223													
48f Ca Splicing														48f Ca Splicing													
1513														610													
8190														4544													
2730														3030													
F.O. Ltr/Rcvr														F.O. Ltr/Rcvr													
450														240													
I/RM Bldg, Power														I/RM Bldg, Power													
222180														139360													
240887														139360													
GRAND TOTAL - FC														GRAND TOTAL - AC													
2522														132446													
\$ per mile (000)														\$ per mile (000)													
.89														.55													
\$/cct-mi														\$/cct-mi													
.55														.55													

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FIGURE 6.23: 15 NODE NETWORK 1.3 M 1995 TRAFFIC, 48f FO CABLE

Traffic Factor		Route									
Mileage Factor		12-4	12-5	13-8	13-14	14-10	15-1	15-10	Total		
2.5415											
1.15											
Actual Traffic		505848	136001	239183	298999	609765	393605	202180	6782830		
VF Ccts Req'd		674464	181334	318910	398665	813020	524806	269574			
Initial Fill											
Total VF Circuits		843080	226668	398638	498331	1016276	656008	336967	26527062		
System Mileage		681.88	1271.65	786.34	1602.07	407.05	215.50	975.33	13254.87		
Circuit Miles(000)		574880	288242	313463	798359	413679	141369	328653	15218758		
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)											
48 fiber FO Cable		19475	36318	22458	45755	11625	6155	27855	610659		
48f Ca Splicing		1317	2457	1519	3095	786	416	1884	41309		
Cable Installation		10801	20143	12456	25377	6448	3413	15449	209957		
F.O. Mtr/Rcur		2520	756	1260	1512	3024	2016	1008	77112		
F.O. Line Repeater		5880	3276	3360	8568	5040	2016	3360	162498		
T/Rw Bldng. Power		1350	2250	1500	2850	1050	750	1800	27150		
M13 Mux		65888	17745	31185	38955	79433	51293	26355	2072963		
GRAND TOTAL - FC		107230	82945	73737	126112	107406	66059	77712	3201648		
\$ per mile (000)		157	65	94	79	264	307	80	242		
\$/cct-mi		.19	.29	.24	.16	.26	.47	.24	.21		
Annual Cost (\$000)											
48 fiber FO Cable		7851	14642	9054	18447	4687	2481	11230	246195		
48f Ca Splicing		531	991	612	1248	317	168	760	16654		
Cable Installation		4355	8121	5022	10231	2599	1376	6229	84647		
F.O. Mtr/Rcur		1581	474	790	948	1897	1265	632	48368		
F.O. Line Repeater		3688	2055	2108	5374	3161	1265	2108	101925		
T/Rw Bldng. Power		539	899	599	1138	419	300	719	10845		
M13 Mux		41327	11130	19560	24434	49823	32173	16531	1300244		
GRAND TOTAL - AC		59872	38312	37746	61821	62904	39027	38208	1808879		
\$ per mile (000)		88	30	48	39	155	181	39	136		
\$/cct-mi		.10	.13	.12	.08	.15	.28	.12	.12		
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)											
48 fiber FO Cable		19475	36318	22458	45755	11625	6155	27855	381287		
48f Ca Splicing		1317	2457	1519	3095	786	416	1884	25793		
Cable Installation		10801	20143	12456	25377	6448	3413	15449	209957		
F.O. Mtr/Rcur		2520	945	1575	1890	3150	2205	1260	79695		
F.O. Line Repeater		5880	4095	4200	10710	5250	2205	4200	169680		
T/Rw Bldng. Power		1350	2250	1500	2850	1050	750	1800	27150		
M13 Mux		65888	17745	31185	38955	79433	51293	26355	2072963		
GRAND TOTAL - FC		107230	83953	74892	128632	107742	66437	78804	2966524		
\$ per mile (000)		157	66	95	80	265	308	81	224		
\$/cct-mi		.19	.29	.24	.16	.26	.47	.24	.19		
Annual Cost (\$000)											
48 fiber FO Cable		7851	14642	9054	18447	4687	2481	11230	153721		
48f Ca Splicing		531	991	612	1248	317	168	760	10399		
Cable Installation		4355	8121	5022	10231	2599	1376	6229	84647		
F.O. Mtr/Rcur		1581	593	988	1185	1976	1383	790	49988		
F.O. Line Repeater		3688	2569	2634	6718	3293	1383	2634	106430		
T/Rw Bldng. Power		539	899	.599	1138	419	300	719	10845		
M13 Mux		41327	11130	19560	24434	49823	32173	16531	1300244		
GRAND TOTAL - AC		59872	38944	38470	63401	63115	39264	38893	1716274		
\$ per mile (000)		88	31	49	40	155	182	40	129		
\$/cct-mi		.10	.14	.12	.08	.15	.28	.12	.11		

FIGURE 6.24: 1.3 M 1995 TRAFFIC, 96f FO CABLE

15 NODE NETWORK

Traffic Factor 2.5415
Mileage Factor 1.15

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-14
Actual Traffic	1706195	1493082	1275339	1427724	824413	717966	663964	561015	855602	1229731	1442893
UF Ccts Req	2274927	1990777	1700452	1903633	1099218	957288	885285	748020	1140803	1639641	1923857
Initial Fill	2843659	2488471	2125565	2379541	1374022	1196610	1106607	935025	1426004	2049552	2404822
Total UF Circuits	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	298.92
System Mileage	271591	354312	1323716	1968454	1401113	492961	445791	1016375	1503710	1675651	718848
Circuit Miles(000)											

1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$000)	10324	15391	33659	89421	55114	22266	21773	58750	56993	44188	32312
96 fiber FO Cable	692	1031	2256	5993	3693	1492	1459	3937	3819	2961	2165
96f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735
Cable Installation	8064	7182	6048	6930	4032	3528	3150	2772	4158	5922	6930
F.O. Htr/Rcvr	2688	4788	14112	20790	14784	5880	5250	10164	15246	17766	6930
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	750
T/Rh Bldg, Power	222180	194460	166110	185903	107363	93503	86468	73080	111458	160125	187898
M13 Mun	245911	225708	233399	323790	203088	134244	125531	167872	210327	245563	241720
GRAND TOTAL - FC	2575	1585	375	391	199	326	312	154	199	300	809
\$ per mile (000)	.91	.64	.18	.16	.14	.27	.28	.17	.14	.15	.34
\$/cct-mi											

Annual Cost (\$000)	4152	6205	13570	36051	22220	8977	8778	23696	22978	17815	13027
96 fiber FO Cable	279	416	909	2416	1489	602	588	1587	1540	1194	873
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909
Cable Installation	5058	4505	3794	4347	2529	2213	1976	1739	2608	3715	4347
F.O. Htr/Rcvr	1686	3003	8852	13040	9273	3688	3293	6375	9563	11144	4347
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	300
T/Rh Bldg, Power	139360	121973	104191	116605	67342	58648	54236	45839	69911	100437	117857
M13 Mun	151335	137251	135832	178402	110144	77178	71863	86947	114112	140184	142659
GRAND TOTAL - AC	1585	964	218	216	108	187	178	80	108	171	477
\$ per mile (000)	.56	.39	.10	.09	.08	.16	.16	.09	.08	.08	.20
\$/cct-mi											

4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	16156
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	2961	2165
96f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735
Cable Installation	8190	7245	6300	6930	4095	3465	3465	2835	4095	5985	6930
F.O. Htr/Rcvr	2730	4830	14700	20790	15015	5775	5775	10395	15015	17955	6930
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	750
T/Rh Bldg, Power	222180	194460	166110	185903	107363	93503	86468	73080	111458	160125	187898
M13 Mun	240571	217601	234239	276083	203382	134076	126371	168166	210033	245815	224481
GRAND TOTAL - FC	2519	1528	376	334	199	325	314	155	199	301	751
\$ per mile (000)	.89	.61	.18	.14	.15	.27	.28	.17	.14	.15	.31
\$/cct-mi											

Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23696	22978	17815	11650
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	1194	873
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909
Cable Installation	5137	4544	3952	4347	2569	2173	1778	2569	2569	3754	4149
F.O. Htr/Rcvr	1712	3030	9220	13040	9418	3622	3622	6520	9418	11262	4347
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	300
T/Rh Bldg, Power	139360	121973	104191	116605	67342	58648	54236	45839	69911	100437	117857
M13 Mun	149220	134006	136359	159168	110328	77073	72390	87131	113928	140342	135709
GRAND TOTAL - AC	1562	941	219	192	108	187	180	80	108	172	454
\$ per mile (000)	.55	.38	.10	.08	.08	.16	.16	.09	.08	.08	.19
\$/cct-mi											

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FIGURE 6.24: 15 NODE NETWORK 1.3 M 1995 TRAFFIC, 96f FO CABLE

2.5415 1.15									
Route		12-4	12-5	13-8	13-14	14-10	15-1	15-10	Total
Actual Traffic		505848	136001	239183	298999	609765	393605	202180	
VF Ccts Req'd		674464	181334	318910	398665	813020	524806	269574	
Initial Fill									
Total VF Circuits		843080	226668	398638	498331	1016276	656008	336967	26527062
System Mileage		681.88	1271.65	786.34	1602.07	407.05	215.50	975.33	13254.87
Circuit Miles(000)		574880	288242	313463	798359	413679	141369	328653	15218758
100 mi Repeater Spacing									
1.1.7 Gbps DIGITAL F0 SYSTEM									
First Cost (\$000)									
96 fiber F0 Cable		36854	68730	42500	86588	22000	11647	52714	819020
96f Ca Splicing		2470	4606	2848	5803	1474	781	3533	54886
Cable Installation		10801	20143	12456	25377	6448	3413	15449	209957
F.O. Mtr/Rcvr		2520	756	1260	1512	3024	2016	1008	77112
F.O. Line Repeater		5880	3276	3360	8568	5040	2016	3360	162498
I/R4 Bldng, Power		1350	2250	1500	2850	1050	750	1800	27150
M13 Mux		65888	17745	31185	38955	79433	51293	26355	2072963
GRAND TOTAL - FC		125763	117506	95109	169653	118469	71916	104219	3423586
\$ per mile (000)		184	92	121	106	291	334	107	258
\$/cct-mi		.22	.41	.30	.21	.29	.51	.32	.22
Annual Cost (\$000)									
96 fiber F0 Cable		14858	27709	17134	34909	8870	4696	21253	330199
96f Ca Splicing		996	1857	1148	2339	594	315	1424	22128
Cable Installation		4355	8121	5022	10231	2599	1376	6229	84647
F.O. Mtr/Rcvr		1581	474	790	948	1897	1265	632	48368
F.O. Line Repeater		3688	2055	2108	5374	3161	1265	2106	101925
I/R4 Bldng, Power		539	899	599	1138	419	300	719	10845
M13 Mux		41327	11130	19560	24434	49823	32173	16531	1300244
GRAND TOTAL - AC		67344	52245	46362	79375	67364	41388	48895	1898356
\$ per mile (000)		99	41	59	50	165	192	50	143
\$/cct-mi		.12	.18	.15	.10	.16	.29	.15	.12
100 mi Repeater Spacing									
4.4.05 Gbps DIGITAL F0 SYSTEM									
First Cost (\$000)									
96 fiber F0 Cable		36854	68730	42500	86588	22000	11647	52714	716399
96f Ca Splicing		2470	4606	2848	5803	1474	781	3533	48009
Cable Installation		10801	20143	12456	25377	6448	3413	15449	209957
F.O. Mtr/Rcvr		2520	945	1575	1890	3150	2205	1260	79695
F.O. Line Repeater		5880	4095	4200	10710	5250	2205	4200	169680
I/R4 Bldng, Power		1350	2250	1500	2850	1050	750	1800	27150
M13 Mux		65888	17745	31185	38955	79433	51293	26355	2072963
GRAND TOTAL - FC		125763	118514	96264	172173	118805	72294	105311	3323853
\$ per mile (000)		184	93	122	107	292	335	108	251
\$/cct-mi		.22	.41	.31	.22	.29	.51	.32	.22
Annual Cost (\$000)									
96 fiber F0 Cable		14858	27709	17134	34909	8870	4696	21253	288826
96f Ca Splicing		996	1857	1148	2339	594	315	1424	19356
Cable Installation		4355	8121	5022	10231	2599	1376	6229	84647
F.O. Mtr/Rcvr		1581	593	988	1185	1976	1383	790	49988
F.O. Line Repeater		3688	2569	2634	6718	3293	1383	2634	106430
I/R4 Bldng, Power		539	899	599	1138	419	300	719	10845
M13 Mux		41327	11130	19560	24434	49823	32173	16531	1300244
GRAND TOTAL - AC		67344	52878	47086	80955	67575	41625	49580	1860336
\$ per mile (000)		99	42	60	51	166	193	51	140
\$/cct-mi		.12	.18	.15	.10	.16	.29	.15	.12

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7 H 1995 TRAFFIC, 486 FO CABLE

15 NODE NETWORK

Traffic Factor		1.3685										
Mileage Factor		1.15										
Route		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4
Actual Traffic	918721	803967	686721	768775	443915	306597	357519	302085	460709	662163	776942	717624
WF Cctrs Req'd	1224961	1071957	915628	1025033	591886	515463	476692	402780	614279	882884	1035923	956832
Initial Fill	1531201	1339946	1144535	1281291	739858	644328	595865	503475	767848	1103605	1294904	1196040
Total WF Circuits	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	298.92	534.66
System Mileage	146241	190783	712770	1059937	754445	265440	240041	547279	809690	902274	387072	639472
Circuit Miles(000)												
100 mi Repeater Spacing												
First Cost (\$000)	5455	8133	35572	47252	29123	11766	11505	31045	30116	46700	17074	30540
48 fiber F0 Cable	369	550	2406	3196	1970	796	778	2100	2037	3159	1155	2056
48f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735	8469
Cable Installation	4410	3906	3276	3780	2268	2016	1890	1512	2268	3150	3780	3528
F.O. Mtr/Rcvr	1470	2604	7644	11340	8316	3360	3150	5544	8316	9450	3780	7056
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	750	1200
T/Rm Bldg. Power	119648	104685	89468	100118	57803	50348	46568	39375	60008	86258	101168	93450
M13 Num	133315	122733	149573	180439	117582	75861	71322	98744	121398	163316	132442	146309
GRAND TOTAL - FC	1396	862	240	218	115	184	177	91	115	200	443	274
\$ per mile (000)	.91	.64	.21	.17	.16	.29	.30	.18	.15	.18	.34	.23
\$/cct-mi												
Annual Cost (\$000)	2199	3279	14341	19050	11741	4743	4638	12516	12142	18828	6884	12312
48 fiber F0 Cable	149	222	970	1289	794	321	314	847	821	1274	466	833
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414
Cable Installation	2766	2450	2055	2371	1423	1265	1185	948	1423	1976	2213	2213
F.O. Mtr/Rcvr	922	1633	4795	7113	5216	2108	1976	3477	5216	5927	2371	4426
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	300	479
T/Rm Bldg. Power	75048	65663	56113	62798	36256	31580	29209	24698	37639	54104	63456	58616
M13 Num	81874	74396	82790	98562	62721	43067	40315	50207	64754	87989	77755	82293
GRAND TOTAL - AC	857	523	133	119	62	105	100	46	61	108	260	154
\$ per mile (000)	.56	.39	.12	.09	.08	.16	.17	.09	.08	.10	.20	.13
\$/cct-mi												
4.05 Gbps DIGITAL F0 SYSTEM												
First Cost (\$000)	2728	4066	17786	23626	29123	11766	11505	31045	30116	23350	8537	15270
48 fiber F0 Cable	185	275	1203	1598	1970	796	778	2100	2037	1580	578	1033
48f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735	8469
Cable Installation	4725	4095	3465	3780	2520	2205	1890	1580	2520	3465	3780	3465
F.O. Mtr/Rcvr	1575	2730	8085	11340	9240	3675	3150	6930	10395	3780	3780	6930
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	750	1200
T/Rm Bldg. Power	119648	104685	89468	100118	57803	50348	46568	39375	60008	86258	101168	93450
M13 Num	130823	118707	131214	155215	118758	76365	71322	100508	122574	139647	123327	129817
GRAND TOTAL - FC	1370	834	211	188	116	185	177	92	116	171	413	243
\$ per mile (000)	.89	.62	.18	.15	.16	.29	.30	.18	.15	.15	.32	.20
\$/cct-mi												
Annual Cost (\$000)	1100	1639	7171	9525	11741	4743	4638	12516	12142	9414	3442	6156
48 fiber F0 Cable	74	111	485	644	794	321	314	847	821	637	233	416
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414
Cable Installation	2964	2569	2173	2371	1581	1383	1185	947	1185	2173	2371	2173
F.O. Mtr/Rcvr	988	1712	5071	7113	5796	2305	1976	4347	5796	6520	2371	4347
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	300	479
T/Rm Bldg. Power	75048	65663	56113	62798	36256	31580	29209	24698	37639	54104	63456	58616
M13 Num	80963	72843	75529	88393	63459	43363	40315	51313	65492	78728	74081	75602
GRAND TOTAL - AC	848	512	121	107	62	105	100	47	62	96	248	141
\$ per mile (000)	.55	.38	.11	.08	.08	.16	.17	.09	.08	.09	.19	.12
\$/cct-mi												

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FIGURE 6.25: 15 NODE NETWORK .7 M 1995 TRAFFIC, 48f F0 CABLE

Traffic Factor	1.3685										
Mileage Factor	1.15										
Route	12-4	12-5	13-8	13-14	14-10	15-1	15-10	Total			
Actual Traffic	272380	73231	128791	160999	328335	211941	108866	3652293			
VF Ccts Req'd	363173	97642	171721	214666	437780	282588	145155				
Initial Fill											
Total VF Circuits	453966	122052	214651	268332	547225	353235	181444	14283802			
System Mileage	681.88	1271.65	786.34	1602.07	407.05	215.50	975.33	13254.87			
Circuit Miles(000)	309551	155207	168788	429885	222750	76122	176967	8194716			
1.7 Gbps DIGITAL F0 SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)											
48 fiber F0 Cable	19475	36318	22458	45755	11625	6155	27855	473922			
48f Ca Splicing	1317	2457	1519	3095	786	416	1884	32059			
Cable Installation	10801	20143	12456	25377	6448	3413	15449	209957			
F.O. Mtr/Rcur	1386	504	756	882	1638	1134	630	42714			
F.O. Line Repeater	3234	2184	2016	4998	2730	1134	2100	90426			
T/Rm Bldg, Power	1350	2250	1500	2850	1050	750	1800	27150			
M13 Num	35490	9555	16800	21000	42788	27615	14228	1116360			
GRAND TOTAL - FC	73053	73411	57504	103957	67065	40617	63946	1992588			
\$ per mile (000)	107	58	73	65	165	188	66	150			
\$/cct-mi	.24	.47	.34	.24	.30	.53	.36	.24			
Annual Cost (\$000)											
48 fiber F0 Cable	7851	14642	9054	18447	4687	2481	11230	191068			
48f Ca Splicing	531	991	612	1248	317	168	760	12925			
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647			
F.O. Mtr/Rcur	869	316	474	553	1027	711	395	26792			
F.O. Line Repeater	2028	1370	1265	3135	1712	711	1317	56719			
T/Rm Bldg, Power	539	899	599	1138	419	300	719	10845			
M13 Num	22261	5993	10538	13172	26838	17321	8924	700225			
GRAND TOTAL - AC	38435	32332	27564	47924	37601	23059	29574	1083221			
\$ per mile (000)	56	25	35	30	92	107	30	82			
\$/cct-mi	.12	.21	.16	.11	.17	.30	.17	.13			
4.05 Gbps DIGITAL F0 SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)											
48 fiber F0 Cable	19475	36318	22458	45755	11625	6155	27855	378559			
48f Ca Splicing	1317	2457	1519	3095	786	416	1884	25608			
Cable Installation	10801	20143	12456	25377	6448	3413	15449	209957			
F.O. Mtr/Rcur	1575	945	945	1260	1890	1260	945	46620			
F.O. Line Repeater	3675	4095	2520	7140	3150	1260	3150	102060			
T/Rm Bldg, Power	1350	2250	1500	2850	1050	750	1800	27150			
M13 Num	35490	9555	16800	21000	42788	27615	14228	1116360			
GRAND TOTAL - FC	73683	75763	58197	106477	67737	40869	65311	1906314			
\$ per mile (000)	108	60	74	66	166	190	67	144			
\$/cct-mi	.24	.49	.34	.25	.30	.54	.37	.23			
Annual Cost (\$000)											
48 fiber F0 Cable	7851	14642	9054	18447	4687	2481	11230	152621			
48f Ca Splicing	531	991	612	1248	317	168	760	10324			
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647			
F.O. Mtr/Rcur	988	593	593	790	1185	593	593	29242			
F.O. Line Repeater	2305	2569	1581	4478	1976	790	1976	64016			
T/Rm Bldg, Power	539	899	599	1138	419	300	719	10845			
M13 Num	22261	5993	10538	13172	26838	17321	8924	700225			
GRAND TOTAL - AC	38830	33807	27998	49505	38022	23227	30430	1051921			
\$ per mile (000)	57	27	36	31	93	108	31	79			
\$/cct-mi	.13	.22	.17	.12	.17	.31	.17	.13			

FIGURE 6.26: 15 NODE NETWORK

Traffic Factor	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4
Mileage Factor	1.15										
Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4
Actual Traffic	918721	803967	686721	768775	443915	386597	357519	302085	460709	776942	717624
VF Ccts Req'd	1224961	1071957	915628	1025033	591886	515463	476692	402780	614279	1035923	956832
Initial Fill	.8										
Total VF Circuits	1531201	1339946	1144535	1281291	739858	644328	595865	503475	767848	1294904	1196040
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	534.66
Circuit Miles(000)	146241	190783	712770	1059937	754445	265440	240041	547279	809690	387072	639472
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	28897
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	2961	1937
96f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	8469
Cable Installation	4410	3906	3276	3780	2268	2016	1890	1512	2268	3150	3528
F.O. Mtr/Rcvr	1470	2604	7644	11340	8316	3360	3150	5544	8316	9450	7056
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	1200
T/Rm Bldg. Power	119648	104685	89460	100118	57803	50348	46568	39375	60008	86258	93450
M13 Mux	132998	122261	147509	177698	145296	87057	82271	128287	150057	160607	144537
GRAND TOTAL - FC	1393	859	237	215	142	211	204	118	142	146	270
\$ per mile (000)	.91	.64	.21	.17	.19	.33	.34	.23	.19	.18	.23
\$/cct-mi											
Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	17815	11650
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	1194	781
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414
Cable Installation	2766	2450	2055	2371	1423	1265	1185	948	1265	1976	2213
F.O. Mtr/Rcvr	922	1633	4795	7113	5216	2108	1976	3477	5216	5927	4426
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	479
T/Rm Bldg. Power	75048	65663	56113	62798	36256	31580	29209	24698	37639	54104	58616
M13 Mux	81746	74205	81958	97457	73895	47581	44729	62117	76308	86896	81579
GRAND TOTAL - AC	856	521	132	118	72	115	111	57	72	106	153
\$ per mile (000)	.56	.39	.11	.09	.10	.18	.19	.11	.09	.10	.13
\$/cct-mi											
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	28897
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	2961	1937
96f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	8469
Cable Installation	4725	4095	3465	3780	2520	2205	1890	1890	2520	3465	3465
F.O. Mtr/Rcvr	1575	2730	8085	11340	9240	3675	3150	6930	9240	10395	6930
F.O. Line Repeater	450	600	1350	1650	1950	1050	1050	1950	1950	1650	1200
T/Rm Bldg. Power	119648	104685	89460	100118	57803	50348	46568	39375	60008	86258	93450
M13 Mux	133418	122576	148139	177698	146472	87561	82271	130051	151233	161867	144348
GRAND TOTAL - FC	1397	861	238	215	144	213	204	120	143	198	270
\$ per mile (000)	.91	.64	.21	.17	.19	.33	.34	.24	.19	.18	.23
\$/cct-mi											
Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	17815	11650
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	1194	781
96f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	3414
Cable Installation	2964	2569	2173	2371	1581	1265	1185	948	1265	1976	2213
F.O. Mtr/Rcvr	988	1712	5071	7113	5796	2305	1976	4347	5796	6520	4347
F.O. Line Repeater	180	240	539	659	779	419	419	779	779	659	479
T/Rm Bldg. Power	75048	65663	56113	62798	36256	31580	29209	24698	37639	54104	58616
M13 Mux	82010	74403	82353	97457	74632	47897	44729	63224	77046	87687	81460
GRAND TOTAL - AC	859	523	132	118	73	116	111	58	73	107	152
\$ per mile (000)	.56	.39	.12	.09	.10	.18	.19	.12	.10	.10	.13
\$/cct-mi											

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FIGURE 6.26: 15 NODE NETWORK .7 M 1995 TRAFFIC, 96f F0 CABLE

Traffic Factor		Route								Total	
Mileage Factor		12-4	12-5	13-8	13-14	14-10	15-1	15-10			
1.3685											
1.15											
1.7 Gbps DIGITAL F0 SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)											
96 fiber F0 Cable	36854	68730	42500	86588	22000	11647	52714	716399			
96f Ca Splicing	2470	4606	2848	5803	1474	781	3533	48009			
Cable Installation	10801	20143	12456	25377	6448	3413	15449	209957			
F-0. Mtr/Rcvr	1386	504	756	882	1638	1134	630	42714			
F-0. Line Repeater	3234	2184	2016	4998	2730	1134	2100	90426			
T/Rm Bldng, Power	1350	2250	1500	2850	1050	750	1800	27150			
M13 Mun	35490	9555	16800	21000	42788	27615	14228	1116360			
GRAND TOTAL - FC	91585	107972	78876	147498	78128	46474	90454	2251015			
\$ per mile (000)	134	85	100	92	192	216	93	170			
\$/cct-mi	.30	.70	.47	.34	.35	.61	.51	.27			
Annual Cost (\$000)											
96 fiber F0 Cable	14858	27709	17134	34909	8870	4696	21253	288826			
96f Ca Splicing	996	1857	1148	2339	594	315	1424	19356			
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647			
F-0. Mtr/Rcvr	869	316	474	553	1027	711	395	26792			
F-0. Line Repeater	2028	1370	1265	3135	1712	711	1317	56719			
T/Rm Bldng, Power	539	899	599	1138	419	300	719	10845			
M13 Mun	22261	5993	10538	13172	26836	17321	8924	700225			
GRAND TOTAL - AC	45906	46265	36180	65478	42061	25430	40261	1187409			
\$ per mile (000)	67	36	46	41	103	118	41	90			
\$/cct-mi	.15	.30	.21	.15	.19	.33	.23	.14			
4.05 Gbps DIGITAL F0 SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)											
96 fiber F0 Cable	36854	68730	42500	86588	22000	11647	52714	716399			
96f Ca Splicing	2470	4606	2848	5803	1474	781	3533	48009			
Cable Installation	10801	20143	12456	25377	6448	3413	15449	209957			
F-0. Mtr/Rcvr	1575	945	1260	1890	1890	1260	945	46620			
F-0. Line Repeater	3675	4095	2520	7140	3150	1260	3150	102060			
T/Rm Bldng, Power	1350	2250	1500	2850	1050	750	1800	27150			
M13 Mun	35490	9555	16800	21000	42788	27615	14228	1116360			
GRAND TOTAL - FC	92215	110324	79569	150018	78800	46726	91819	2266555			
\$ per mile (000)	135	87	101	94	194	217	94	171			
\$/cct-mi	.30	.71	.47	.35	.35	.61	.52	.28			
Annual Cost (\$000)											
96 fiber F0 Cable	14858	27709	17134	34909	8870	4696	21253	288826			
96f Ca Splicing	996	1857	1148	2339	594	315	1424	19356			
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647			
F-0. Mtr/Rcvr	988	593	790	1185	1185	790	593	29242			
F-0. Line Repeater	2305	2569	1581	4478	1976	790	1976	64016			
T/Rm Bldng, Power	539	899	599	1138	419	300	719	10845			
M13 Mun	22261	5993	10538	13172	26836	17321	8924	700225			
GRAND TOTAL - AC	46302	47741	36614	67059	42482	25588	41117	1197157			
\$ per mile (000)	68	38	47	42	104	119	42	90			
\$/cct-mi	.15	.31	.22	.16	.19	.34	.23	.15			

FIGURE 6.27: 2000 TRAFFIC, 48f FO CABLE

15 NODE NETWORK

Traffic Factor 3.2775
 Mileage Factor 1.15

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
Actual Traffic	2200297	1925468	1644668	1841183	1063157	925884	856243	723481	1103379	1585852	1718679
WF Ccts Req'd	2933730	2567291	2192891	2454911	1417543	1234511	1141658	964642	1471171	2114470	2291572
Initial Fill	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8
Total WF Circuits	3667162	3209114	2741114	3058639	1771929	1543139	1427072	1205802	1838964	2643087	2864465
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	534.66
Circuit Miles(000)	350241	456916	1707055	2536504	1806865	635719	574889	1310710	1939174	2160907	1531509

4.05 Gbps DIGITAL FO SYSTEM 150 mi Repeater Spacing

First Cost (\$000)	5455	8133	35572	47252	29123	11766	11505	31045	30116	23350	17074
48 fiber FO Cable	359	550	2406	3196	1970	796	778	2100	2037	1580	1155
48f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735
Cable Installation	10710	9450	7875	9135	5355	4725	4095	3465	5670	7560	9135
F.O. Mtr/Rcvr	3570	3150	13125	16270	12495	4725	4095	9240	15120	15120	6090
F.O. Line Repeater	450	450	1050	1200	1350	750	750	1500	1500	1200	600
T/Rm Bldg, Power	286545	250740	214200	239768	138443	120593	111510	94238	143693	206535	242288
M13 Mux	308612	274728	284093	331924	204888	149880	139115	158806	214839	268295	281077
GRAND TOTAL - FC	3231	1930	456	401	201	364	345	146	204	328	940
\$ per mile (000)	-88	-60	-17	-13	-11	-24	-24	-12	-11	-12	-30
\$/cct-mi											

Annual Cost (\$000)	2199	3279	14341	19050	11741	4743	4638	12516	12142	9414	6884
48 fiber FO Cable	149	222	970	1289	794	321	314	847	821	637	466
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909
Cable Installation	6718	5927	4940	5730	3359	2964	2569	5736	3556	4742	5730
F.O. Mtr/Rcvr	2239	1976	8233	11460	7837	2964	2569	5736	3556	4742	5730
F.O. Line Repeater	180	180	419	479	539	300	300	599	599	479	240
T/Rm Bldg, Power	179732	157274	134355	150392	86837	75640	69943	59109	90130	129547	151972
M13 Mux	191827	169767	167235	193682	117620	89563	82905	87982	123466	159524	171020
GRAND TOTAL - AC	2009	1192	269	234	115	217	206	81	117	195	572
\$ per mile (000)	-55	-37	-10	-08	-07	-14	-14	-07	-06	-07	-18
\$/cct-mi											

8.1 Gbps DIGITAL FO SYSTEM 150 mi Repeater Spacing

First Cost (\$000)	2728	4066	17786	23626	29123	11766	11505	31045	30116	23350	15270
48 fiber FO Cable	185	275	1203	1598	1970	796	778	2100	2037	1580	1033
48f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735
Cable Installation	11340	10080	8190	9450	5670	5040	4410	3780	5670	7560	9450
F.O. Mtr/Rcvr	3780	3360	13650	18900	13230	5040	4410	10080	15120	15120	6300
F.O. Line Repeater	450	450	1050	1200	1350	750	750	1500	1500	1200	600
T/Rm Bldg, Power	286545	250740	214200	239768	138443	120593	111510	94238	143693	206535	242288
M13 Mux	306540	271227	265944	307645	205938	150510	139745	159961	214839	268295	272487
GRAND TOTAL - FC	3210	1905	427	372	202	365	347	147	204	328	912
\$ per mile (000)	-88	-59	-16	-12	-11	-24	-24	-12	-11	-12	-29
\$/cct-mi											

Annual Cost (\$000)	1100	1639	7171	9525	11741	4743	4638	12516	12142	9414	6156
48 fiber FO Cable	74	111	485	644	794	321	314	847	821	637	416
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909
Cable Installation	7113	6323	5137	5927	3556	3161	2766	6323	3556	4742	5927
F.O. Mtr/Rcvr	2371	2108	8562	11855	8298	3161	2766	6323	3556	4742	5927
F.O. Line Repeater	180	180	419	479	539	300	300	599	599	479	240
T/Rm Bldg, Power	179732	157274	134355	150392	86837	75640	69943	59109	90130	129547	151972
M13 Mux	191180	168544	160106	184106	118278	89958	83300	88707	123466	159524	167675
GRAND TOTAL - AC	2002	1184	257	223	116	218	207	82	117	195	561
\$ per mile (000)	-55	-37	-09	-07	-07	-14	-14	-07	-06	-07	-18
\$/cct-mi											

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FIGURE 6.27: 15 NODE NETWORK 2000 TRAFFIC, 48f FO CABLE

Traffic Factor Mileage Factor	Route										Total
	12-4	12-5	13-8	13-14	14-10	15-1	15-10	15-11	15-12	15-13	
3.2775 1.15											
Actual Traffic	652338	175386	308448	385586	786349	507590	260730	8747088			
VF Cmts Req'd	869784	233847	411265	514115	1048465	676786	347640				
Initial Fill											
Total VF Circuits	1087230	292309	514081	642644	1310582	845983	434551	34209107			
System Mileage	681.88	1271.65	786.34	1602.07	407.05	215.50	975.33	13254.87			
Circuit Miles(000)	741362	371714	404240	1029557	533477	162308	423829	14626001			
4.05 Gbps DIGITAL FO SYSTEM 150 mi Repeater Spacing											
First Cost (\$000)	19475	36310	22458	45755	11625	6155	27855	450572			
48 fiber FO Cable	1317	2457	1519	3095	786	416	1884	30480			
48f Ca Splicing	10801	20143	12456	25377	6448	3413	15449	209957			
Cable Installation	3150	1260	1890	2205	3780	2520	1575	101745			
F.O. Mtr/Rcvr	5250	3780	3780	8085	3780	1680	3675	145950			
F.O. Line Repeater	1050	1650	1200	1950	750	600	1350	20250			
I/Rx Bldg, Power	84945	22838	40215	50243	102428	66098	33968	2673090			
M13 Num	125988	68445	83517	136709	129597	80882	85756	3632044			
GRAND TOTAL - FC	185	70	106	85	318	375	88	274			
\$ per mile (000)	.17	.24	.21	.13	.24	.44	.20	.19			
\$/cct-mi											
Annual Cost (\$000)	7851	14642	9054	18447	4687	2481	11230	181654			
48 fiber FO Cable	531	991	612	1248	317	168	760	12288			
48f Ca Splicing	4355	8121	5022	10231	2599	1376	6229	84647			
Cable Installation	1976	790	1185	1383	2371	1383	988	63818			
F.O. Mtr/Rcvr	3293	2371	2371	5071	2371	1054	2305	91546			
F.O. Line Repeater	419	659	479	779	300	240	539	8089			
I/Rx Bldg, Power	53281	14325	25224	31514	64247	41459	21306	1676668			
M13 Num	71706	41899	43948	68673	76892	48358	43357	2118711			
GRAND TOTAL - AC	105	33	56	43	189	224	44	160			
\$ per mile (000)	.10	.11	.11	.07	.14	.27	.10	.11			
\$/cct-mi											
8.1 Gbps DIGITAL FO SYSTEM 150 mi Repeater Spacing											
First Cost (\$000)	19475	36310	22458	45755	11625	6155	27855	378559			
48 fiber FO Cable	1317	2457	1519	3095	786	416	1884	25608			
48f Ca Splicing	10801	20143	12456	25377	6448	3413	15449	209957			
Cable Installation	3780	1890	2520	2520	4410	3150	1890	108990			
F.O. Mtr/Rcvr	6300	5670	5040	9240	4410	2100	4410	157080			
F.O. Line Repeater	1050	1650	1200	1950	750	600	1350	20250			
I/Rx Bldg, Power	84945	22838	40215	50243	102428	66098	33968	2673090			
M13 Num	127668	90965	85407	138179	130857	81932	86806	3573534			
GRAND TOTAL - FC	187	72	109	86	321	380	89	270			
\$ per mile (000)	.17	.24	.21	.13	.25	.45	.20	.18			
\$/cct-mi											
Annual Cost (\$000)	7851	14642	9054	18447	4687	2481	11230	152621			
48 fiber FO Cable	531	991	612	1248	317	168	760	10324			
48f Ca Splicing	4355	8121	5022	10231	2599	1376	6229	84647			
Cable Installation	2371	1185	1581	1581	2766	1976	1185	68363			
F.O. Mtr/Rcvr	3952	3556	3161	5796	2766	1317	2766	98527			
F.O. Line Repeater	419	659	479	779	300	240	539	8089			
I/Rx Bldg, Power	53281	14325	25224	31514	64247	41459	21306	1676668			
M13 Num	72760	43479	45134	69595	77682	49017	44015	2099239			
GRAND TOTAL - AC	107	34	57	43	191	227	45	158			
\$ per mile (000)	.10	.12	.11	.07	.15	.27	.10	.11			
\$/cct-mi											

FIGURE 6.28: 2000 TRAFFIC, 96f FO CABLE

15 NODE NETWORK

Traffic Factor Mileage Factor	3-2775 1.15	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-1
Actual Traffic	2200297	1925468	1644668	1841183	1063157	925884	856243	723481	1103379	1585852	1860744	1718679
VF Ccts Req'd	2933730	2567291	2192891	2454911	1417543	1234511	1141658	964642	1471171	2114470	2480992	2291572
Initial Fill	-8											
Total VF Circuits	3667162	3209114	2741114	3068639	1771929	1543139	1427072	1205802	1838964	2643087	3101240	2864465
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	817.57	293.92	534.66
Circuit Miles (000)	350241	456918	1707055	2538504	1806865	635719	574889	1310710	1939174	2160907	927021	1531509

4.05 Gbps DIGITAL FO SYSTEM 150 mi Repeater Spacing

First Cost (\$000)												
96 fiber FO Cable	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	16156	28897
96f Ca Splicing	346	516	2256	2996	3693	1492	1459	3937	3819	2961	1083	1937
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735	8469
F.O. Mtr/Rcvr	10710	9450	7875	9135	5355	4725	4095	3465	5670	7560	9135	8190
F.O. Line Repeater	3570	3150	13125	16270	12495	4725	4095	9240	15120	15120	6090	10920
T/Rm Bldng. Power	450	450	1050	1200	1350	750	750	1500	1500	1200	600	900
M13 Mux	286545	250740	214200	239768	138443	120593	111510	94238	143693	206535	242288	223808
GRAND TOTAL - FC	308296	274256	282029	329183	232602	161076	150063	188348	243498	290515	280086	283120
\$ per mile (000)	3228	1926	453	398	228	391	373	173	231	355	937	530
\$/cct-mi	.88	.60	.17	.13	.13	.25	.26	.14	.13	.13	.30	.18

Annual Cost (\$000)												
96 fiber FO Cable	2081	3103	13570	18026	22220	8977	8778	23686	22978	17815	6514	11650
96f Ca Splicing	139	208	909	1208	1489	602	588	1587	1540	1194	436	781
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414
F.O. Mtr/Rcvr	6718	5927	4940	5730	3359	2964	2569	2173	3556	4742	5730	5137
F.O. Line Repeater	2239	1976	8233	11460	7837	2964	2569	5796	9484	9484	3820	6849
T/Rm Bldng. Power	180	180	419	479	539	300	300	599	599	479	240	360
M13 Mux	179732	157274	134355	150392	86837	75640	69943	59109	90130	129547	151972	140381
GRAND TOTAL - AC	191700	169577	166403	192577	128793	94077	87319	99893	135021	168462	170621	168572
\$ per mile (000)	2007	1191	267	233	126	228	217	92	128	206	571	315
\$/cct-mi	.55	.37	.10	.08	.07	.15	.15	.08	.07	.18	.18	.11

8.1 Gbps DIGITAL FO SYSTEM 150 mi Repeater Spacing

First Cost (\$000)												
96 fiber FO Cable	5162	7695	33659	44711	55114	22266	21773	58750	56993	44188	16156	28897
96f Ca Splicing	346	516	2256	2996	3693	1492	1459	3937	3819	2961	1083	1937
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	12950	4735	8469
F.O. Mtr/Rcvr	11340	10080	8190	9450	5670	5040	4410	3780	5670	7560	9450	8190
F.O. Line Repeater	3780	3360	13650	18900	13230	5040	4410	10080	15120	15120	6300	10920
T/Rm Bldng. Power	450	450	1050	1200	1350	750	750	1500	1500	1200	600	900
M13 Mux	286545	250740	214200	239768	138443	120593	111510	94238	143693	206535	242288	223808
GRAND TOTAL - FC	309136	275096	282869	330128	233652	161706	150693	189503	243498	290515	280611	283120
\$ per mile (000)	3237	1932	454	399	229	393	374	174	231	355	939	530
\$/cct-mi	.88	.60	.17	.13	.13	.25	.26	.14	.13	.13	.30	.18

Annual Cost (\$000)												
96 fiber FO Cable	2081	3103	13570	18026	22220	8977	8778	23686	22978	17815	6514	11650
96f Ca Splicing	139	208	909	1208	1489	602	588	1587	1540	1194	436	781
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	5221	1909	3414
F.O. Mtr/Rcvr	7113	6323	5137	5927	3556	3161	2766	2371	3556	4742	5927	5137
F.O. Line Repeater	2371	2108	8562	11855	8298	3161	2766	6323	9484	9484	3952	6849
T/Rm Bldng. Power	180	180	419	479	539	300	300	599	599	479	240	360
M13 Mux	179732	157274	134355	150392	86837	75640	69943	59109	90130	129547	151972	140381
GRAND TOTAL - AC	192227	170104	166930	193170	129452	94472	87714	100617	135021	168462	170950	168572
\$ per mile (000)	2013	1195	268	234	127	229	218	93	128	206	572	315
\$/cct-mi	.55	.37	.10	.08	.07	.15	.15	.08	.07	.18	.18	.11

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FIGURE 6.28: 15 NODE NETWORK 2000 TRAFFIC, 96f FO CABLE

Traffic Factor		Route								
Mileage Factor		12-4	12-5	13-8	13-14	14-10	15-1	15-10	Total	
3.2775	1.15									
4.05 Gbps DIGITAL FO SYSTEM										
150 mi Repeater Spacing										
First Cost (\$000)										
Actual Traffic	652338	175386	308448	385586	786349	507590	260730			
VF Ccts Req'd	869784	233847	411265	514115	1048465	676786	347640			
Initial Fill										
Total VF Circuits	1087230	292309	514081	642644	1310582	845983	434551	34209107		
System Mileage	681.88	1271.65	786.34	1602.07	407.05	215.50	975.33	13254.87		
Circuit Miles(000)	741362	371714	404240	1029557	533477	182308	423829	19626001		
Annual Cost (\$000)										
96 fiber FO Cable	36854	68730	42500	86588	22000	11647	52714	716399		
96f Ca Splicing	2470	4606	2848	5803	1474	781	3533	48009		
Cable Installation	10801	20143	12456	25377	6448	3413	15449	209957		
F.O. Mntr/Rcur	3150	1260	1890	2205	2205	2520	1575	101745		
F.O. Line Repeater	5250	3780	3780	8085	3780	1680	3675	145950		
T/Rm Bldg, Power	1050	1650	1200	1950	750	600	1350	20250		
M13 Mun	84945	22838	40215	50243	102428	66098	33968	2673090		
GRAND TOTAL - FC	144520	123006	104689	180250	140660	86739	112264	3915400		
\$ per mile (000)	212	97	133	113	346	403	115	295		
\$/cct-mi	.19	.33	.26	.18	.26	.48	.26	.20		
8.1 Gbps DIGITAL FO SYSTEM										
150 mi Repeater Spacing										
First Cost (\$000)										
96 fiber FO Cable	14858	27709	17134	34909	8870	4696	21253	288826		
96f Ca Splicing	996	1857	1148	2339	594	315	1424	19356		
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647		
F.O. Mntr/Rcur	1976	790	1185	1383	2371	1581	988	63818		
F.O. Line Repeater	3293	2371	2371	5071	2371	1054	2305	91546		
T/Rm Bldg, Power	419	659	479	779	300	240	539	8089		
M13 Mun	53281	14325	25224	31514	64247	41459	21306	1676668		
GRAND TOTAL - AC	79178	55832	52564	86227	81352	50720	54043	2232949		
\$ per mile (000)	116	44	67	54	200	235	55	168		
\$/cct-mi	.11	.15	.13	.08	.15	.28	.13	.11		
8.1 Gbps DIGITAL FO SYSTEM										
150 mi Repeater Spacing										
First Cost (\$000)										
96 fiber FO Cable	36854	68730	42500	86588	22000	11647	52714	716399		
96f Ca Splicing	2470	4606	2848	5803	1474	781	3533	48009		
Cable Installation	10801	20143	12456	25377	6448	3413	15449	209957		
F.O. Mntr/Rcur	3780	1890	2520	2520	4410	3150	1890	108990		
F.O. Line Repeater	6300	5670	5040	9240	4410	2100	4410	157080		
T/Rm Bldg, Power	1050	1650	1200	1950	750	600	1350	20250		
M13 Mun	84945	22838	40215	50243	102428	66098	33968	2673090		
GRAND TOTAL - FC	146200	125526	106779	181720	141920	87789	113314	3933775		
\$ per mile (000)	214	99	136	113	349	407	116	297		
\$/cct-mi	.20	.34	.26	.18	.27	.48	.27	.20		
Annual Cost (\$000)										
96 fiber FO Cable	14858	27709	17134	34909	8870	4696	21253	288826		
96f Ca Splicing	996	1857	1148	2339	594	315	1424	19356		
Cable Installation	4355	8121	5022	10231	2599	1376	6229	84647		
F.O. Mntr/Rcur	2371	1185	1383	2371	2371	1581	988	63818		
F.O. Line Repeater	3952	3556	3161	5796	2766	1317	2766	98527		
T/Rm Bldg, Power	419	659	479	779	300	240	539	8089		
M13 Mun	53281	14325	25224	31514	64247	41459	21306	1676668		
GRAND TOTAL - AC	80231	57413	53750	87149	82142	51378	54702	2244475		
\$ per mile (000)	118	45	68	54	202	238	56	169		
\$/cct-mi	.11	.15	.13	.08	.15	.28	.13	.11		

EXHIBIT 6.29: 17 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)

Page 1 of 6

Link	Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
1-2	53675.3	83.06	123.81	541.53	719.34	571.78	703.00	350.30	945.22	916.95	710.93	464.92
1-3	48903.1	48903.1	48903.1	66169.4	24078.0	13002.0	25167.5	25167.5	17439.4	17439.4	17439.4	17439.4
1-4	66169.4	66169.4	66169.4	66169.4	24078.0	13002.0	25167.5	25167.5	17439.4	17439.4	17439.4	17439.4
1-5	24078.0	24078.0	24078.0	24078.0	24078.0	13002.0	25167.5	25167.5	17439.4	17439.4	17439.4	17439.4
1-6	13002.0	13002.0	13002.0	13002.0	13002.0	13002.0	25167.5	25167.5	17439.4	17439.4	17439.4	17439.4
1-7	25167.5	25167.5	25167.5	25167.5	25167.5	25167.5	25167.5	25167.5	17439.4	17439.4	17439.4	17439.4
1-8	17439.4	17439.4	17439.4	17439.4	17439.4	17439.4	17439.4	17439.4	17439.4	17439.4	17439.4	17439.4
1-9	18194.8	18194.8	18194.8	18194.8	18194.8	18194.8	18194.8	18194.8	18194.8	18194.8	18194.8	18194.8
1-10	61058.0	61058.0	61058.0	61058.0	61058.0	61058.0	61058.0	61058.0	61058.0	61058.0	61058.0	61058.0
1-11	36431.7	36431.7	36431.7	36431.7	36431.7	36431.7	36431.7	36431.7	36431.7	36431.7	36431.7	36431.7
1-12	27571.3	27571.3	27571.3	27571.3	27571.3	27571.3	27571.3	27571.3	27571.3	27571.3	27571.3	27571.3
1-13	12148.7	12148.7	12148.7	12148.7	12148.7	12148.7	12148.7	12148.7	12148.7	12148.7	12148.7	12148.7
1-14	21575.6	21575.6	21575.6	21575.6	21575.6	21575.6	21575.6	21575.6	21575.6	21575.6	21575.6	21575.6
1-15	61299.4	61299.4	61299.4	61299.4	61299.4	61299.4	61299.4	61299.4	61299.4	61299.4	61299.4	61299.4
1-16	26403.8	26403.8	26403.8	26403.8	26403.8	26403.8	26403.8	26403.8	26403.8	26403.8	26403.8	26403.8
1-17	77012.9	77012.9	77012.9	77012.9	77012.9	77012.9	77012.9	77012.9	77012.9	77012.9	77012.9	77012.9
2-3	25087.1	25087.1	25087.1	25087.1	25087.1	25087.1	25087.1	25087.1	25087.1	25087.1	25087.1	25087.1
2-4	30328.0	30328.0	30328.0	30328.0	30328.0	30328.0	30328.0	30328.0	30328.0	30328.0	30328.0	30328.0
2-5	10712.0	10712.0	10712.0	10712.0	10712.0	10712.0	10712.0	10712.0	10712.0	10712.0	10712.0	10712.0
2-6	6059.5	6059.5	6059.5	6059.5	6059.5	6059.5	6059.5	6059.5	6059.5	6059.5	6059.5	6059.5
2-7	11249.4	11249.4	11249.4	11249.4	11249.4	11249.4	11249.4	11249.4	11249.4	11249.4	11249.4	11249.4
2-8	7795.7	7795.7	7795.7	7795.7	7795.7	7795.7	7795.7	7795.7	7795.7	7795.7	7795.7	7795.7
2-9	8073.5	8073.5	8073.5	8073.5	8073.5	8073.5	8073.5	8073.5	8073.5	8073.5	8073.5	8073.5
2-10	26833.0	26833.0	26833.0	26833.0	26833.0	26833.0	26833.0	26833.0	26833.0	26833.0	26833.0	26833.0
2-11	16225.8	16225.8	16225.8	16225.8	16225.8	16225.8	16225.8	16225.8	16225.8	16225.8	16225.8	16225.8
2-12	13633.7	13633.7	13633.7	13633.7	13633.7	13633.7	13633.7	13633.7	13633.7	13633.7	13633.7	13633.7
2-13	5358.6	5358.6	5358.6	5358.6	5358.6	5358.6	5358.6	5358.6	5358.6	5358.6	5358.6	5358.6
2-14	10488.3	10488.3	10488.3	10488.3	10488.3	10488.3	10488.3	10488.3	10488.3	10488.3	10488.3	10488.3
2-15	23688.5	23688.5	23688.5	23688.5	23688.5	23688.5	23688.5	23688.5	23688.5	23688.5	23688.5	23688.5
2-16	11683.8	11683.8	11683.8	11683.8	11683.8	11683.8	11683.8	11683.8	11683.8	11683.8	11683.8	11683.8
2-17	34743.8	34743.8	34743.8	34743.8	34743.8	34743.8	34743.8	34743.8	34743.8	34743.8	34743.8	34743.8
3-4	37619.4	37619.4	37619.4	37619.4	37619.4	37619.4	37619.4	37619.4	37619.4	37619.4	37619.4	37619.4
3-5	13620.7	13620.7	13620.7	13620.7	13620.7	13620.7	13620.7	13620.7	13620.7	13620.7	13620.7	13620.7
3-6	7027.8	7027.8	7027.8	7027.8	7027.8	7027.8	7027.8	7027.8	7027.8	7027.8	7027.8	7027.8
3-7	12764.3	12764.3	12764.3	12764.3	12764.3	12764.3	12764.3	12764.3	12764.3	12764.3	12764.3	12764.3
3-8	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2	8892.2
3-9	9292.3	9292.3	9292.3	9292.3	9292.3	9292.3	9292.3	9292.3	9292.3	9292.3	9292.3	9292.3
3-10	31179.9	31179.9	31179.9	31179.9	31179.9	31179.9	31179.9	31179.9	31179.9	31179.9	31179.9	31179.9
3-11	19968.3	19968.3	19968.3	19968.3	19968.3	19968.3	19968.3	19968.3	19968.3	19968.3	19968.3	19968.3
3-12	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9	17670.9
3-13	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3	6202.3
3-14	12050.0	12050.0	12050.0	12050.0	12050.0	12050.0	12050.0	12050.0	12050.0	12050.0	12050.0	12050.0
3-15	21631.5	21631.5	21631.5	21631.5	21631.5	21631.5	21631.5	21631.5	21631.5	21631.5	21631.5	21631.5
3-16	14329.9	14329.9	14329.9	14329.9	14329.9	14329.9	14329.9	14329.9	14329.9	14329.9	14329.9	14329.9
3-17	41659.0	41659.0	41659.0	41659.0	41659.0	41659.0	41659.0	41659.0	41659.0	41659.0	41659.0	41659.0
4-5	29608.3	29608.3	29608.3	29608.3	29608.3	29608.3	29608.3	29608.3	29608.3	29608.3	29608.3	29608.3
4-6	12120.5	12120.5	12120.5	12120.5	12120.5	12120.5	12120.5	12120.5	12120.5	12120.5	12120.5	12120.5
4-7	31933.5	31933.5	31933.5	31933.5	31933.5	31933.5	31933.5	31933.5	31933.5	31933.5	31933.5	31933.5
4-8	18545.6	18545.6	18545.6	18545.6	18545.6	18545.6	18545.6	18545.6	18545.6	18545.6	18545.6	18545.6
4-9	17343.1	17343.1	17343.1	17343.1	17343.1	17343.1	17343.1	17343.1	17343.1	17343.1	17343.1	17343.1
4-10	59144.4	59144.4	59144.4	59144.4	59144.4	59144.4	59144.4	59144.4	59144.4	59144.4	59144.4	59144.4
4-11	37870.9	37870.9	37870.9	37870.9	37870.9	37870.9	37870.9	37870.9	37870.9	37870.9	37870.9	37870.9
4-12	33414.9	33414.9	33414.9	33414.9	33414.9	33414.9	33414.9	33414.9	33414.9	33414.9	33414.9	33414.9
4-13	12476.2	12476.2	12476.2	12476.2	12476.2	12476.2	12476.2	12476.2	12476.2	12476.2	12476.2	12476.2
4-14	21083.5	21083.5	21083.5	21083.5	21083.5	21083.5	21083.5	21083.5	21083.5	21083.5	21083.5	21083.5
4-15	31794.8	31794.8	31794.8	31794.8	31794.8	31794.8	31794.8	31794.8	31794.8	31794.8	31794.8	31794.8
4-16	32061.0	32061.0	32061.0	32061.0	32061.0	32061.0	32061.0	32061.0	32061.0	32061.0	32061.0	32061.0
4-17	63918.6	63918.6	63918.6	63918.6	63918.6	63918.6	63918.6	63918.6	63918.6	63918.6	63918.6	63918.6

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17 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)

EXHIBIT 6.29:

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17 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)

EXHIBIT 6.29:

Link	Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-1	10-11	11-4
5-6	7208.9					7208.9							
5-7	20110.2					20110.2							
5-8	13955.1					13955.1							
5-9	11315.7					11315.7							
5-10	27450.4					27450.4							
5-11	20334.6					20334.6							
5-12	14035.8					14035.8							
5-13	9431.8					9431.8							
5-14	11924.5					11924.5							
5-15	12168.5					12168.5							
5-16	20622.0					20622.0							
5-17	28776.2					28776.2							
6-7	13519.9					13519.9							
6-8	8298.4					8298.4							
6-9	5479.5					5479.5							
6-10	11652.7					11652.7							
6-11	8037.8					8037.8							
6-12	5810.5					5810.5							
6-13	4572.0					4572.0							
6-14	5095.3					5095.3							
6-15	6293.2					6293.2							
6-16	7559.3					7559.3							
6-17	13472.6					13472.6							
7-8	39978.5					39978.5							
7-9	19951.1					19951.1							
7-10	36087.3					36087.3							
7-11	23895.9					23895.9							
7-12	12355.2					12355.2							
7-13	23436.3					23436.3							
7-14	15358.3					15358.3							
7-15	12968.6					12968.6							
7-16	22094.3					22094.3							
7-17	35204.5					35204.5							
8-9	13860.2					13860.2							
8-10	24881.5					24881.5							
8-11	16144.0					16144.0							
8-12	8215.0					8215.0							
8-13	17006.6					17006.6							
8-14	10613.4					10613.4							
8-15	8962.0					8962.0							
8-16	15260.0					15260.0							
8-17	19427.1					19427.1							
9-10	19150.3					19150.3							
9-11	12992.6					12992.6							
9-12	7944.7					7944.7							
9-13	8959.8					8959.8							
9-14	9363.3					9363.3							
9-15	8355.8					8355.8							
9-16	11259.2					11259.2							
9-17	18060.4					18060.4							
10-11	38202.0					38202.0							
10-12	25485.9					25485.9							
10-13	16854.7					16854.7							
10-14	24374.2					24374.2							
10-15	30542.2					30542.2							
10-16	27776.7					27776.7							
10-17	66826.9					66826.9							

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EXHIBIT 6.29: 17 NODE NETWORK ROUTING MATRIX <1990 TRAFFIC DATA>										Page 4 of 6		
Link	Route	11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	Total
5-6												571.78
5-7												1274.78
5-8												1625.06
5-9												1719.39
5-10												802.44
5-11	11315.7											542.51
5-12	11315.7											1195.87
5-13												2308.85
5-14												1186.40
5-15												1655.12
5-16												223.04
5-17												1110.28
6-7												703.00
6-8												1053.30
6-9												1998.52
6-10												1374.22
6-11	11652.7											1114.29
6-12	8037.8											1767.65
6-13												1737.07
6-14												1728.18
6-15												2226.90
6-16												794.82
6-17												1682.06
7-8												380.30
7-9												1295.52
7-10												2212.47
7-11												1817.29
7-12												2470.65
7-13												1034.07
7-14												2427.17
7-15												2929.90
7-16												1497.82
7-17												2385.06
8-9												945.22
8-10												1862.17
8-11												2122.10
8-12												2820.95
8-13												683.77
8-14												2076.87
8-15												2718.56
8-16												1848.12
8-17												2170.01
9-10												916.95
9-11												1176.88
9-12												2234.74
9-13												1628.99
9-14												1270.91
9-15												1773.34
9-16												1942.43
9-17												259.93
10-11												1224.79
10-12												1317.79
10-13												1747.06
10-14												353.96
10-15												886.39
10-16												1025.48
10-17												307.84

EXHIBIT 6.29: 17 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)													Page 5 of 6	
Link	Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12		
11-12	16695.4											16695.4		
11-13	10818.9										10818.9			
11-14	15176.9										15176.9			
11-15	16497.2										16497.2			
11-16	20301.2													
11-17	39239.1										39239.1			
12-13	5546.9										5546.9			
12-14	8689.1										8689.1			
12-15	12845.8	12845.8	12845.8	12845.8										
12-16	16669.3													
12-17	29536.3										29536.3			
13-14	7344.8													
13-15	6088.8													
13-16	10092.5					10092.5	10092.5	10092.5						
13-17	16133.2													
14-15	9672.0													
14-16	11029.3										11029.3			
14-17	24414.6													
15-16	13470.4	13470.4	13470.4	13470.4	13470.4									
15-17	36266.3													
16-17	27590.0													
Total	2.83046	638626.1	560497.1	478601.0	345268.3	386583.5	315113.2	228661.4	187879.8	290974.9	309239.8	27590.0		
												675444.0		
												325703.3		

EXHIBIT 6.29: 17 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)													Page 6 of 6	
Link	Route	11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	Total		
11-12												1057.86		
11-13												2006.99		
11-14					10818.9	10818.9						613.89		
11-15						15176.9						1116.32		
11-16		20301.2						20301.2		16497.2	16497.2	765.86		
11-17										39239.1		567.77		
12-13			5546.9		5546.9							3064.85		
12-14			8689.1		8689.1							1671.75		
12-15			12845.6				12845.6					1528.72		
12-16									16669.3			972.83		
12-17			29536.3							29536.3		1625.63		
13-14					7344.8							1393.10		
13-15					6088.8	6088.8				6088.8	6088.8	2603.45		
13-16				10092.5	16133.2	16133.2		10092.5		16133.2		2831.89		
13-17						9672.0				9672.0		2054.90		
14-15						11029.3		11029.3			9672.0	1210.35		
14-16						24414.6				24414.6		1379.44		
14-17		11029.3										661.80		
15-16							13470.4	13470.4				1679.16		
15-17												548.55		
16-17		27590.0						27590.0			36266.3	1333.32		
Total		269963.0	199034.9	99470.7	135433.1	266076.6	349576.4	311949.9	57085.8	462717.5	269800.0			

EXHIBIT 6.29 A: 17 NODE ROUTING MATRIX

Total Traffic = 2,830,407 Erlangs

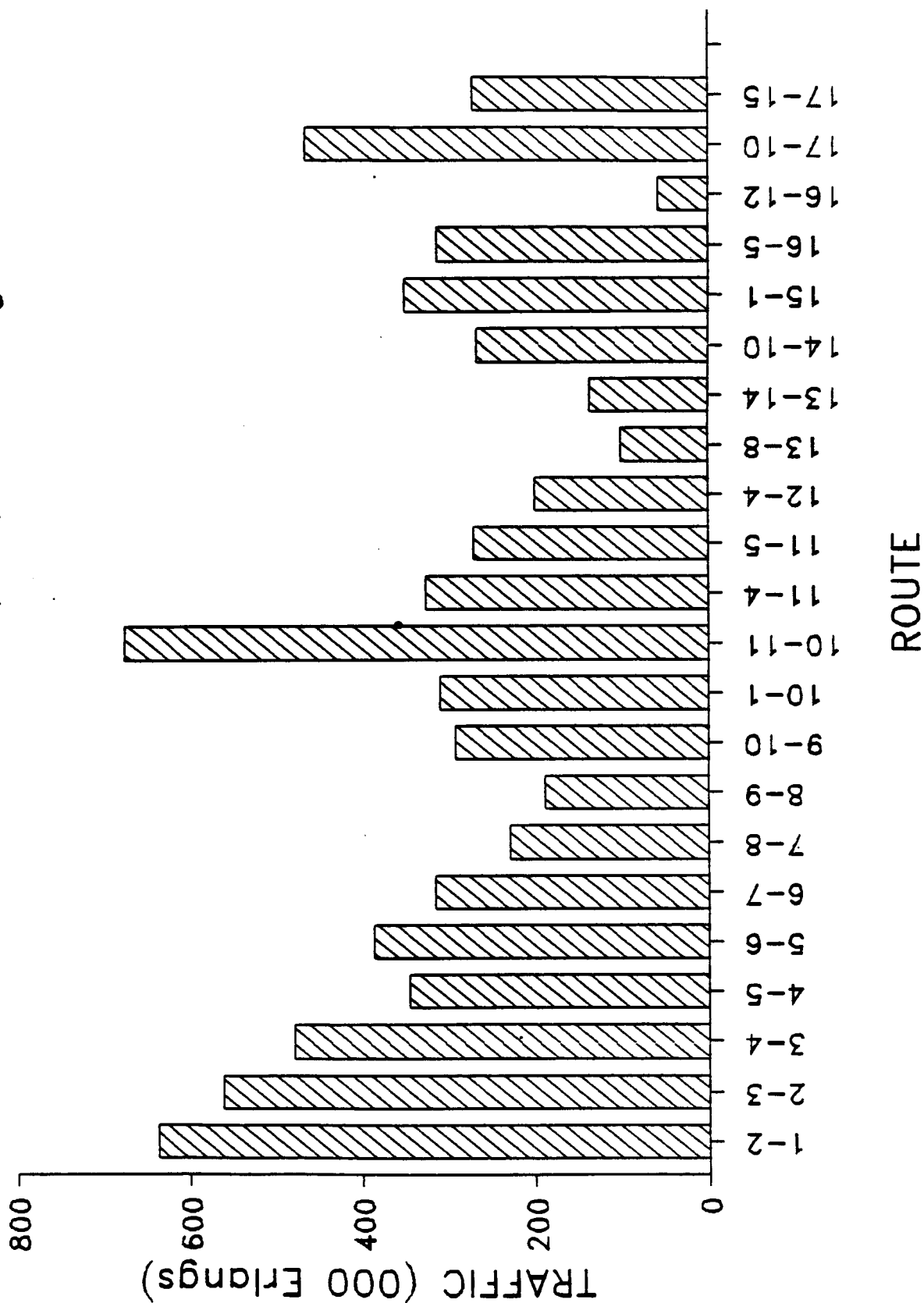


FIGURE 6.30: 17 NODE NETWORK 1983 TRAFFIC, 48f FO CABLE

Traffic Factor Mileage Factor	Route										
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-14
Actual Traffic	362420	318082	271006	195940	219386	178827	129765	104622	165128	175494	383314
VF Ccts Req'd	483227	424109	362141	261283	292515	238436	173020	142162	220171	233991	511086
Initial Fill	-8										
Total VF Circuits	604034	530137	452677	326566	365644	298045	216276	177703	275214	292489	638857
System Mileage	96.51	142.38	622.76	827.24	657.55	908.45	402.85	1087.00	1084.49	817.57	298.92
Circuit Miles<000>	57690	75482	281909	270149	240428	240954	87126	193164	290211	239130	190967
405 mbps DIGITAL FO SYSTEM	25 mi Repeater Spacing										
First Cost (\$000)	13638	16266	71144	70878	56339	69268	23011	62090	90349	70049	42686
48 fiber FO Cable	923	1100	4813	4795	3811	4686	1557	4200	6112	4739	2888
48f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735
Cable Installation	3924	3456	2952	2124	2412	1980	1404	1188	1800	1944	4140
F.O. Mtr/Rcvr	5232	6912	2400	24072	21708	21780	7956	17424	25800	21384	16560
F.O. Line Repeater	900	1200	4050	5400	4380	5250	2850	6900	6780	5250	2100
V/Rm Bldng, Power	26970	23670	20220	14890	16380	13320	9660	7950	12300	13080	26930
M13 Rm	53100	54859	137543	134952	115385	129090	52818	116970	199614	129396	101638
GRAND TOTAL - FC	566	385	221	153	175	160	131	108	152	158	340
\$ per mile <000>	.92	.73	.49	.50	.43	.54	.61	.61	.55	.54	.56
\$/cct-mi											
Annual Cost (\$000)	5499	6558	28683	28575	22714	27926	9277	25032	36425	28241	17209
48 fiber FO Cable	372	444	1940	1933	1537	1889	628	1693	2464	1910	1164
48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909
Cable Installation	2461	2168	1852	1332	1513	1242	881	745	1129	1219	2897
F.O. Mtr/Rcvr	3282	4335	16430	15099	13616	13661	4990	10929	16183	13413	10387
F.O. Line Repeater	360	479	1518	2157	1738	2097	1138	2756	2696	2097	839
V/Rm Bldng, Power	15917	14847	12683	9145	10255	8355	6059	4987	7715	8204	17895
M13 Rm	29500	29740	66182	63625	55571	60334	25546	53084	73347	60307	52000
GRAND TOTAL - AC	309	209	106	77	95	75	63	49	70	74	174
\$ per mile <000>	.51	.39	.23	.24	.23	.25	.29	.27	.25	.25	.27
\$/cct-mi											

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FIGURE 6.30: 17 NODE NETWORK 1983 TRAFFIC, 48f FO CABLE

Route	17 NODE NETWORK										Total
	11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	
Traffic Factor	.5675										
Mileage Factor	1.15										
Actual Traffic	153204	112952	56450	76858	150998	198385	177032	32396	262592	153112	
VF Ccts Req'd	204272	150603	75266	102478	201331	264513	236042	43195	350123	204149	
Initial Fill	255340	188254	94083	128097	251664	330641	293053	53994	437654	255186	6775667
Total VF Circuits	623.89	681.88	786.34	1602.07	407.05	215.50	256.50	1118.75	354.02	630.83	14026.19
System Mileage	159303	128367	73981	205220	102441	71253	75680	60406	154936	160980	3524481
Circuit Miles(000)											
405 Mbps DIGITAL FO SYSTEM 25 mi Repeater Spacing											
First Cost (\$000)	35636	38949	22458	45755	23251	18464	21977	31952	40443	36033	946444
48 fiber FO Cable	2411	2635	1519	3095	1573	1249	1487	2161	2736	2438	64024
48f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	1692	1260	648	864	1656	2160	1944	360	2880	1692	44496
F.O. Mtr/Rcvr	14100	11760	6912	18720	9384	6480	7128	5400	14400	14664	317160
F.O. Line Repeater	4050	4500	5100	10050	2850	1650	1950	7050	2550	4200	92550
I/Rw Bldg, Power	11400	8430	4230	5730	11250	14790	13200	2430	19560	11400	302820
M13 Num	79171	78335	53322	109591	56412	48206	51748	67074	86176	60419	1989669
GRAND TOTAL - FC	127	115	68	68	139	224	202	60	249	127	142
\$ per mile (000)	.50	.61	.72	.53	.55	.68	.68	1.11	.57	.50	.56
\$/cct-mi											
Annual Cost (\$000)	14367	15703	9054	18447	9374	7444	9860	12882	16305	14527	381571
48 fiber FO Cable	972	1062	612	1248	634	504	599	871	1103	983	25812
48f Ca Splicing	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
Cable Installation	1061	790	406	542	1039	1355	1219	226	1806	1061	27910
F.O. Mtr/Rcvr	8844	7376	4335	11742	5886	4065	4471	3387	9832	9198	198935
F.O. Line Repeater	1618	1798	2037	4015	1138	659	779	2816	1019	1678	36970
I/Rw Bldg, Power	7151	5288	2653	3594	7056	9277	8280	1524	12269	7151	189941
M13 Num	37997	36372	24121	49818	27727	24679	25846	28851	43795	38626	950712
GRAND TOTAL - AC	61	53	31	31	68	115	101	26	124	61	68
\$ per mile (000)	.24	.26	.33	.24	.27	.35	.34	.48	.28	.24	.27
\$/cct-mi											

EXHIBIT 6.30A: 17 NODE NETWORK (1983)

405 mbps DIGITAL FO SYSTEM

25 mi Repeater Spacing

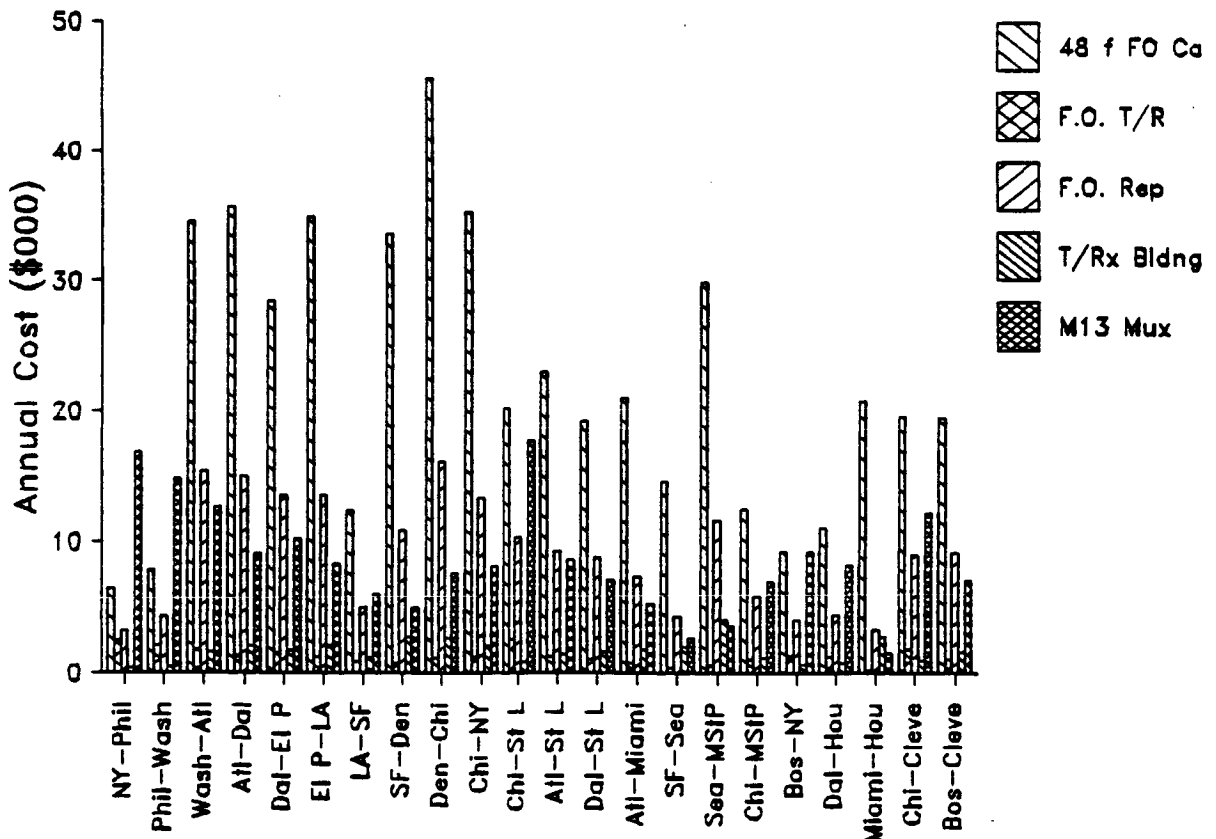
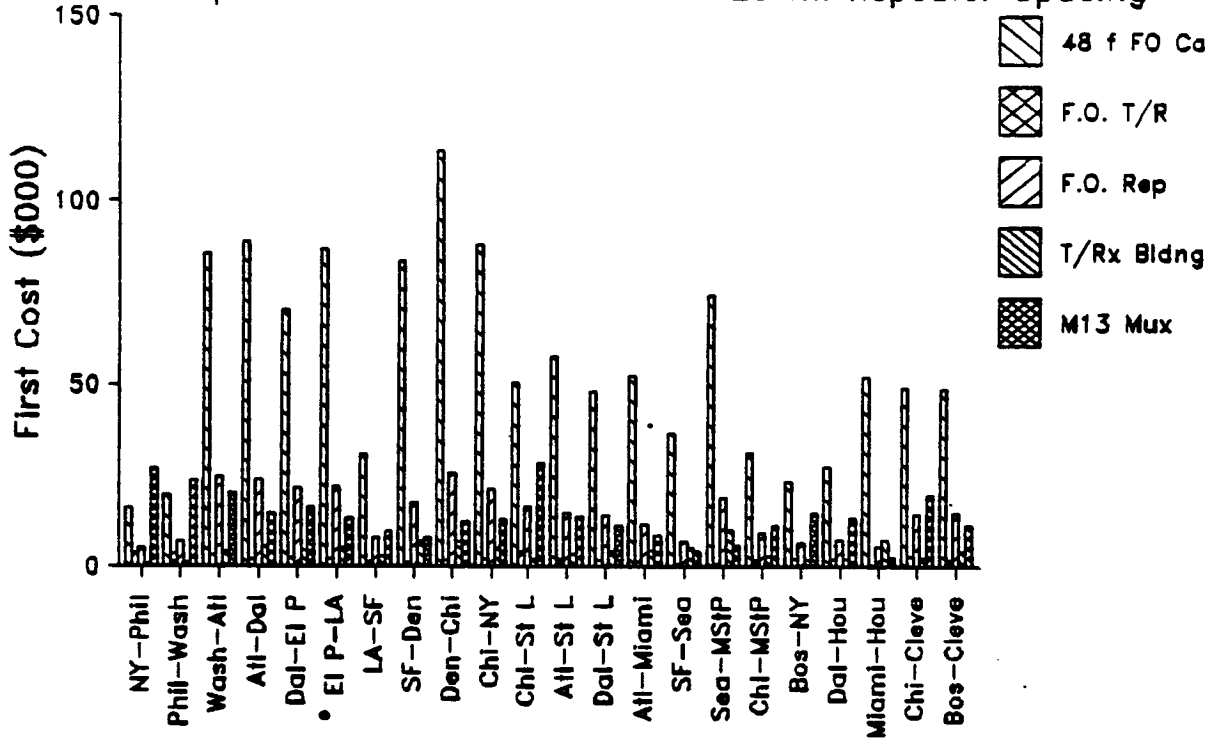


FIGURE 6.31: 1985 TRAFFIC, 48F FO CABLE

17 NODE NETWORK

Traffic Factor Mileage Factor	Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
.684	Actual Traffic	436820	383380	327363	236164	264423	215537	156404	128510	199027	211520	223781
1.15	UF Ccts Read	582427	511173	436484	314885	352564	287383	208539	171346	265369	282027	297041
	Initial Fill	728034	638967	545505	393806	440705	359229	260674	214183	331711	352533	371302
	Total VF Circuits	95.51	142.38	622.76	827.24	657.85	808.45	402.85	1087.00	1054.49	817.57	534.66
	System Mileage	69833	90977	339781	328607	289784	290419	105011	232818	349787	286221	198519
	Circuit Miles(000)											
	405 Mbps DIGITAL FO SYSTEM											
	25 mi Repeater Spacing											
	First Cost (\$000)	16366	20332	88930	70878	75118	69268	23011	62090	90349	70049	45809
	48 fiber FO Cable	1107	1375	6016	4795	5082	4686	1557	4200	6112	4739	3099
	48f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	8469
	Cable Installation	4752	4140	3664	2592	2880	2340	1728	1404	2160	2304	2448
	F.O. Mtr/Rcvr	6336	8280	29700	29376	25920	26740	9792	20592	30960	25344	17952
	F.O. Line Repeater	900	1200	4050	5400	4350	5250	2850	6900	6750	5250	3600
	T/Rx Bldg, Power	32520	28530	24360	17580	19680	16050	11640	9570	14820	15750	16590
	M13 Num	63494	66113	166484	143724	143445	136140	56958	121974	167854	136386	97967
	GRAND TOTAL - FC	665	464	267	174	218	160	141	112	159	167	183
	\$ per mile (000)	.91	.73	.49	.44	.50	.47	.54	.52	.48	.47	.49
	\$/cct-mi											
	Annual Cost (\$000)	6598	8197	35853	28575	30285	27926	9277	25032	36425	28241	18469
	48 fiber FO Cable	446	555	2425	1933	2049	1889	628	1693	2464	1910	1249
	48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	3414
	Cable Installation	2981	2697	2235	1626	1806	1468	1084	881	1355	1445	1535
	F.O. Mtr/Rcvr	3974	5194	18659	18426	16258	16145	6142	12916	19419	15897	11260
	F.O. Line Repeater	360	479	1618	2187	1738	2097	1138	2756	2696	2097	1438
	T/Rx Bldg, Power	20398	17895	15280	11027	12344	10067	7301	6003	9296	9879	10406
	M13 Num	35367	35826	80018	69027	68679	64756	28142	56223	78390	64691	47772
	GRAND TOTAL - AC	370	282	128	83	104	80	70	52	74	79	89
	\$ per mile (000)	.51	.39	.24	.21	.24	.22	.27	.24	.22	.22	.24
	\$/cct-mi											
	565 Mbps DIGITAL FO SYSTEM											
	25 mi Repeater Spacing											
	First Cost (\$000)	13638	16266	71144	70878	56339	69268	23011	62090	60233	46700	45809
	48 fiber FO Cable	923	1100	4813	4795	3811	4586	1557	4200	4075	3159	3099
	48f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	8469
	Cable Installation	4158	3654	3108	2268	2520	2058	1512	1260	1932	2016	2142
	F.O. Mtr/Rcvr	5544	7308	25901	25705	22681	22639	8568	18481	27693	22177	15708
	F.O. Line Repeater	900	1200	4050	5400	4350	5250	2850	6900	6750	5250	3600
	T/Rx Bldg, Power	32520	28530	24360	17580	19680	16050	11640	9570	14820	15750	16590
	M13 Num	59196	60314	143240	139729	119796	132756	55518	119718	132205	108002	95418
	GRAND TOTAL - FC	620	424	230	169	182	164	138	110	125	132	178
	\$ per mile (000)	.85	.66	.42	.43	.41	.46	.53	.51	.38	.37	.48
	\$/cct-mi											
	Annual Cost (\$000)	5499	6558	28683	28575	22714	27926	9277	25032	24284	18828	18469
	48 fiber FO Cable	372	444	1940	1933	1537	1889	628	1693	2464	1910	1249
	48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	3414
	Cable Installation	2608	2292	1950	1423	1581	1291	948	790	1212	1265	1344
	F.O. Mtr/Rcvr	3478	4584	16246	16123	14226	14200	5374	11592	17370	13910	9853
	F.O. Line Repeater	360	479	1618	2187	1738	2097	1138	2756	2696	2097	1438
	T/Rx Bldg, Power	20398	17895	15280	11027	12344	10067	7301	6003	9296	9879	10406
	M13 Num	33323	33161	69693	66521	58338	62633	27239	54808	63234	52473	46173
	GRAND TOTAL - AC	349	233	112	80	89	77	68	50	60	64	86
	\$ per mile (000)	.48	.36	.21	.20	.20	.22	.26	.24	.18	.18	.23
	\$/cct-mi											

FIGURE 6.31: 17 NODE NETWORK 1985 TRAFFIC, 48 F0 CABLE

17 NODE NETWORK

Traffic Factor .684
Mileage Factor 1.15

Route	11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	Total
Actual Traffic	184655	136140	68038	92636	181996	239110	213374	39047	316499	184543	
VF Ccts Req'd	246206	181520	90717	123515	242662	318814	284498	52062	421998	246068	
Initial Fill											
Total VF Circuits	307756	226900	113397	154394	303327	398517	355623	65078	527498	307572	8166618
System Mileage	623.99	681.88	786.34	1602.07	407.05	215.60	256.60	1118.75	354.02	630.63	14026.19
Circuit Miles(000)	192006	154719	69166	247349	123471	85880	91216	72806	186743	194026	4248009
405 mbps DIGITAL F0 SYSTEM 25 mi Repeater Spacing											
First Cost (\$000)	53455	38949	22458	91510	34876	18464	21977	31952	40443	54050	1091556
48 fiber F0 Cable	3616	2635	1519	6190	2359	1249	1487	2161	2736	3656	73841
48f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	2016	1512	756	1044	2016	2592	2304	432	3456	2016	53460
F.O. Mtr/Rcvr	16800	14112	8064	22620	11424	7776	8448	6480	17280	17472	380464
F.O. Line Repeater	4050	4500	5100	10050	2850	1650	1950	7050	2550	4200	92550
T/Rx Bldg, Power	13740	10140	5070	6900	13560	17820	15900	2910	23550	13740	364800
M13 Nuh	103559	82649	55422	163691	73533	52964	56128	68706	95622	105126	2278865
GRAND TOTAL - FC	166	121	70	102	181	246	219	61	270	167	162
\$ per mile (000)	.54	.53	.62	.66	.60	.62	.62	.94	.51	.54	.54
\$/cct-mi											
Annual Cost (\$000)	21551	15703	9054	36893	14061	7444	8860	12882	16305	21791	440075
48 fiber F0 Cable	1458	1062	612	2496	951	504	599	871	1103	1474	29770
48f Ca Splicing	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
Cable Installation	1265	948	474	655	1265	1626	1445	271	2168	1265	33532
F.O. Mtr/Rcvr	10536	8852	5058	14188	7166	4677	5299	4065	10839	10959	238655
F.O. Line Repeater	1618	1798	2037	4015	1138	659	779	2816	1019	1678	36970
T/Rx Bldg, Power	8618	6360	3180	4328	8505	11177	9973	1825	14771	8618	228817
M13 Nuh	49031	39077	25436	72806	35685	27663	28594	29875	48465	49813	1097392
GRAND TOTAL - AC	79	57	32	46	88	128	111	27	137	79	78
\$ per mile (000)	.26	.25	.29	.29	.29	.32	.31	.41	.26	.26	.26
\$/cct-mi											
565 mbps DIGITAL F0 SYSTEM 25 mi Repeater Spacing											
First Cost (\$000)	35636	38949	22458	45755	23251	18464	21977	31952	30332	36033	882867
48 fiber F0 Cable	2411	2635	1519	3095	1573	1249	1487	2161	2052	2438	59723
48f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	1806	1344	714	924	1764	2310	2058	420	3024	1806	47167
F.O. Mtr/Rcvr	15050	12544	7616	20021	9996	6930	7546	6300	15120	15652	336654
F.O. Line Repeater	4050	4500	5100	10050	2850	1650	1950	7050	2550	4200	92550
T/Rx Bldg, Power	13740	10140	5070	6900	13560	17820	15900	2910	23550	13740	364800
M13 Nuh	82576	60913	54933	112121	59442	51837	54980	68514	82236	83662	2005936
GRAND TOTAL - FC	132	119	70	70	146	241	214	61	232	133	143
\$ per mile (000)	.43	.52	.62	.45	.48	.60	.60	.94	.44	.43	.47
\$/cct-mi											
Annual Cost (\$000)	14367	15703	9054	18447	9374	7444	8860	12882	12229	14527	355939
48 fiber F0 Cable	972	1062	612	1248	634	504	599	871	827	983	24078
48f Ca Splicing	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
Cable Installation	1133	843	448	580	1106	1499	1291	263	1897	1133	29585
F.O. Mtr/Rcvr	9440	7868	4777	12558	6270	4347	4733	3952	9484	9818	211163
F.O. Line Repeater	1618	1798	2037	4015	1138	659	779	2816	1019	1678	36970
T/Rx Bldg, Power	8618	6360	3180	4328	8505	11177	9973	1825	14771	8618	228817
M13 Nuh	40133	37989	25131	51405	29628	26956	27674	29754	42488	40785	976125
GRAND TOTAL - AC	64	56	32	32	73	125	109	27	120	65	70
\$ per mile (000)	.21	.25	.28	.21	.24	.31	.31	.41	.23	.21	.23
\$/cct-mi											

EXHIBIT 6.31A: 17 NODE NETWORK (1985)

405 mbps DIGITAL FO SYSTEM

25 mi Repeater Spacing

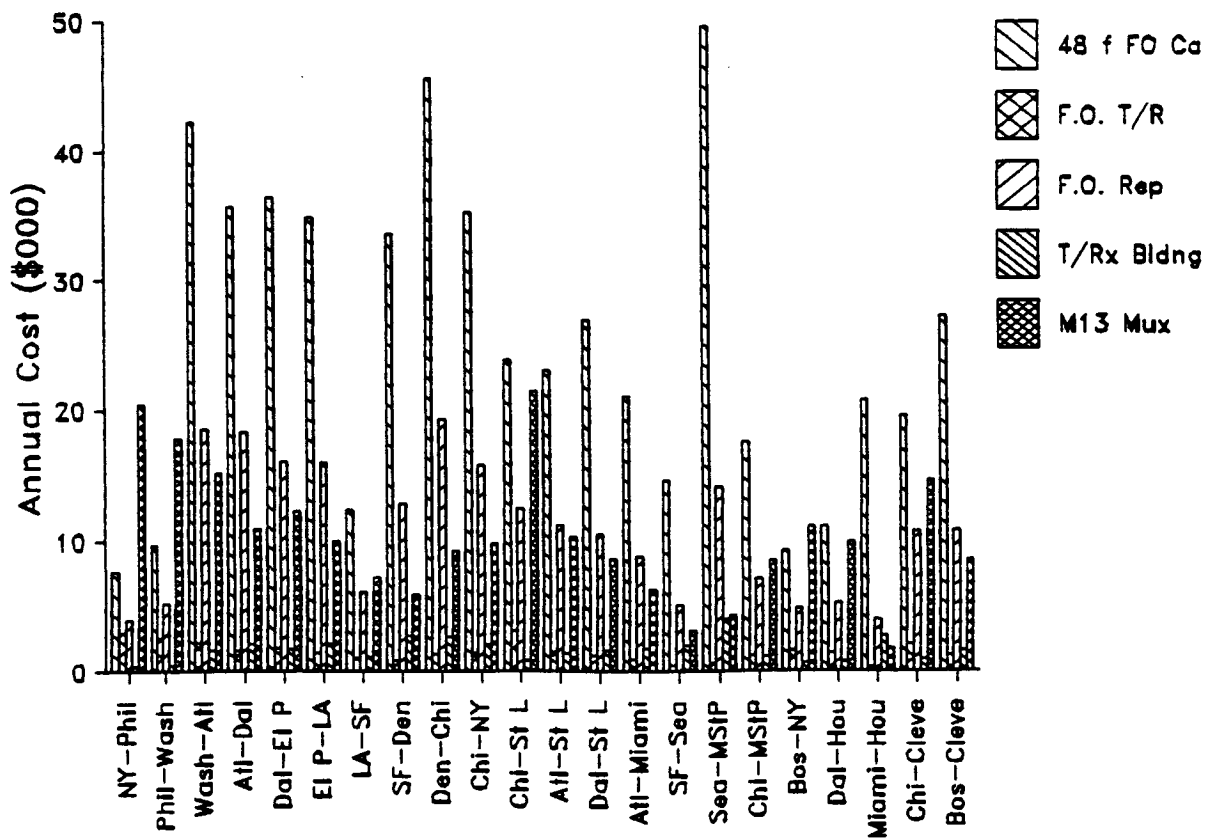
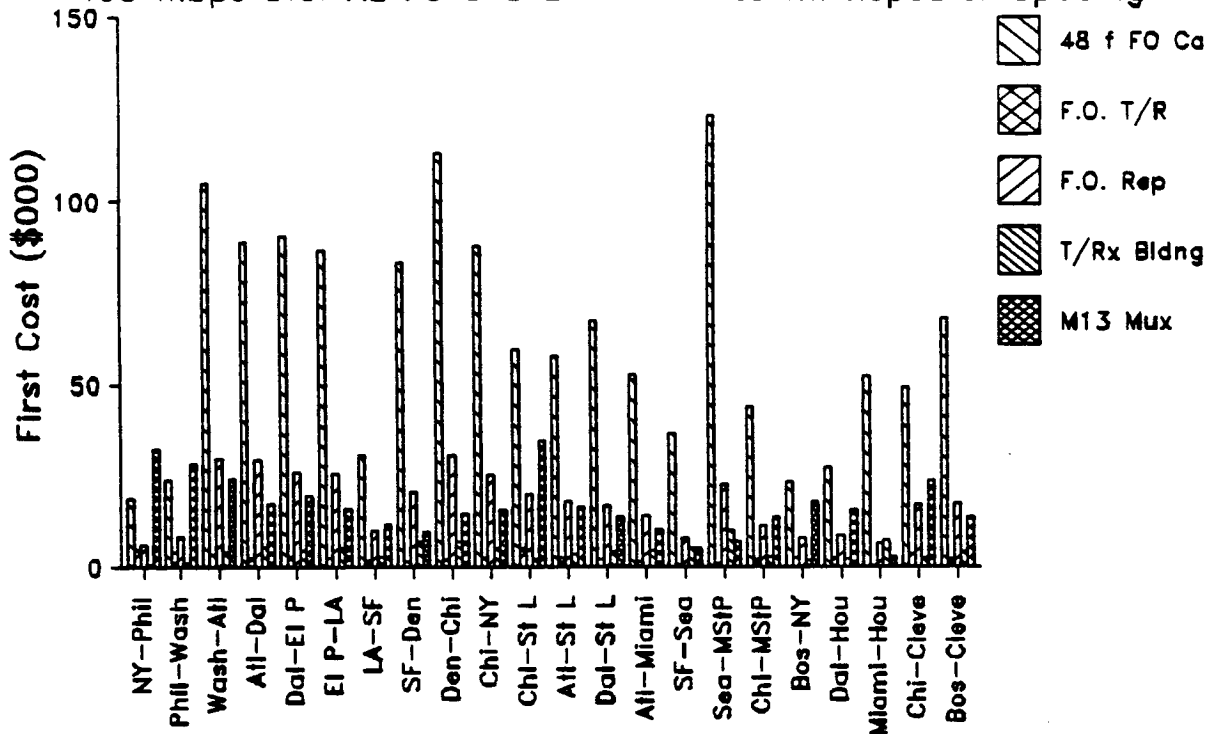


EXHIBIT 6.31B: 17 NODE NETWORK (1985)

565 mbps DIGITAL FO SYSTEM

25 mi Repeater Spacing

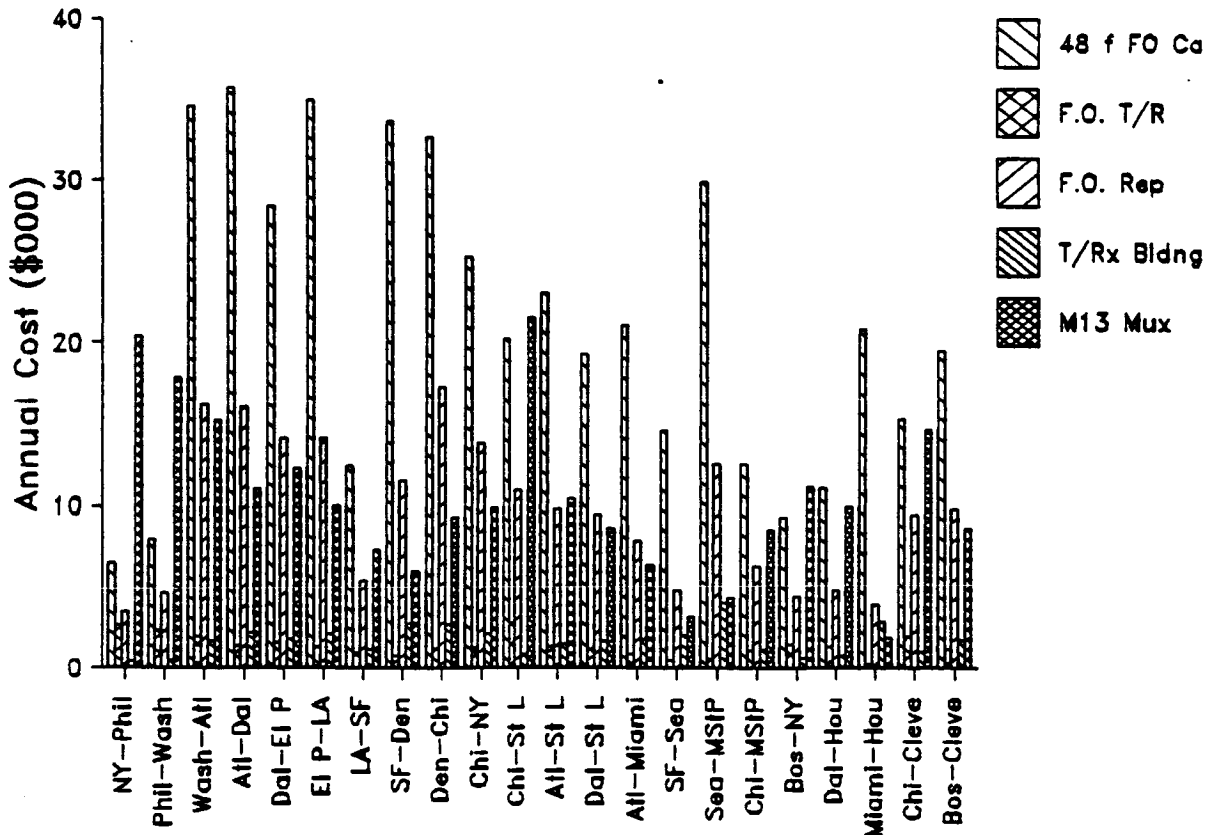
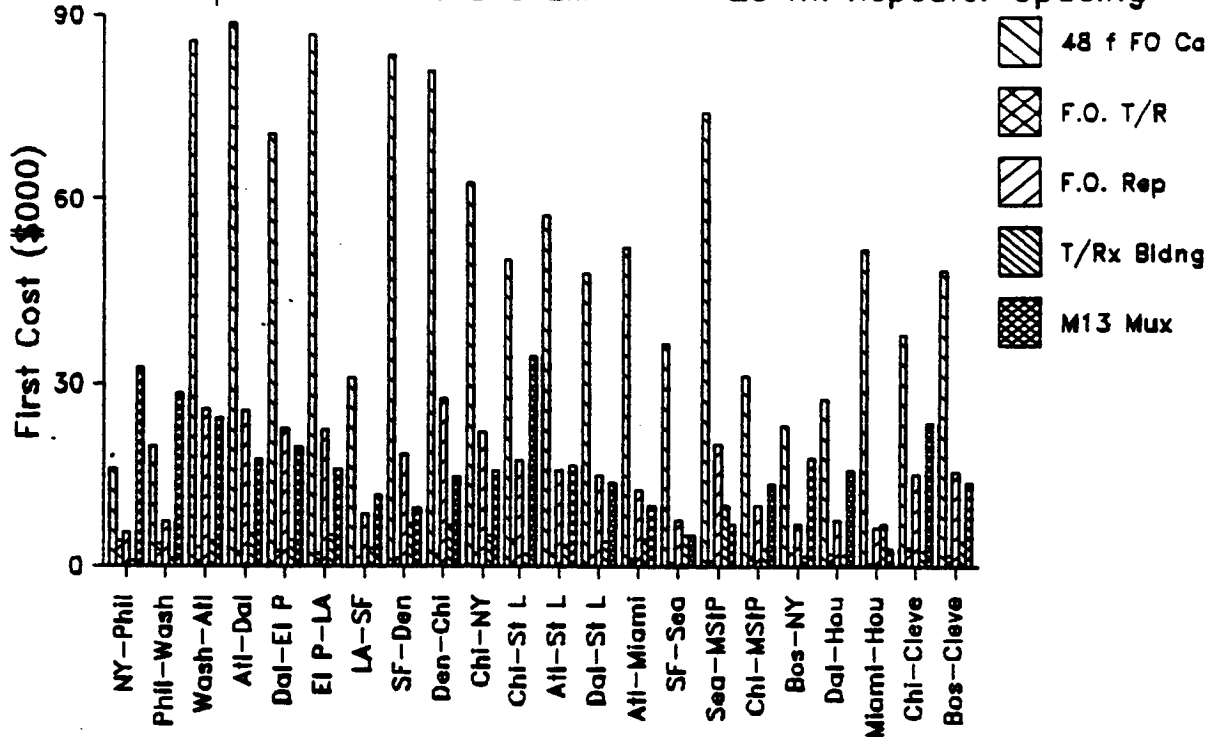


FIGURE 6.32: 17 MODE NETWORK 1985 TRAFFIC, 96f FO CHBLE

Traffic Factor		Route										
Mileage Factor		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-14
.684												
1.15												
Actual Traffic		383380	327363	236164	264423	215537	156404	208539	128603	199020	211520	462004
VF Ccts Recd		582427	436484	314895	352564	287383	208539	171337	171337	266360	262027	616005
Initial Fill		8										
Total VF Circuits		728034	545805	393606	440705	359229	260674	214172	331700	352533	352533	770006
System Mileage		95.51	622.76	827.24	657.55	808.45	402.85	1087.00	1054.49	817.57	298.92	534.66
Circuit Miles(000)		69533	339781	325607	289784	290419	105011		232806	349775	286221	230170
405 mbps DIGITAL FO SYSTEM		25 mi Repeater Spacing										
First Cost (\$000)		15486	23086	100977	89421	71078	67390	21773	58750	113986	88376	48468
96 fiber FO Cable		1038	157	6767	5923	4763	5856	1459	3937	7639	5922	3248
96f Ca Splicing		1038	157	6767	5923	4763	5856	1459	3937	7639	5922	3248
Cable Installation		1513	2255	9855	13103	10416	12806	6381	17218	16703	12950	4735
F.O. Mtr/Rcvr		4762	4140	3564	2592	2880	2340	1728	1404	2160	2304	5004
F.O. Line Repeater		6336	8280	29700	23376	25920	26740	9792	20592	30960	25344	20016
T/Rm Bldg, Power		900	1200	4050	5400	4350	5250	2850	6900	6750	6250	2100
N13 Mtr		32520	26530	24360	17580	19680	16050	11640	9670	14820	15750	34380
GRAND TOTAL - FC		62546	69039	179262	163455	139087	155432	55623	118372	193018	155897	117951
\$ per mile (000)		655	485	288	198	212	192	138	109	183	395	207
\$/cct-mi		.90	.76	.63	.50	.49	.54	.63	.51	.65	.64	.56
Annual Cost (\$000)		6243	9308	40710	36051	28655	35233	8778	23686	45953	35530	19541
96 fiber FO Cable		418	624	2728	2416	1920	2361	588	1587	3080	2388	1309
96f Ca Splicing		418	624	2728	2416	1920	2361	588	1587	3080	2388	1309
Cable Installation		610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909
F.O. Mtr/Rcvr		2981	2597	2236	1626	1806	1468	1084	881	1355	1445	1535
F.O. Line Repeater		3974	5194	18659	18426	16258	16145	6142	12916	19419	15897	12555
T/Rm Bldg, Power		360	479	1618	2157	1738	2097	1138	2756	2696	2097	839
N13 Mtr		20398	17895	15280	11027	12344	10067	7301	6003	9296	9879	21564
GRAND TOTAL - AC		34984	37005	85127	76986	66922	72534	27604	54771	88535	72557	60856
\$ per mile (000)		366	250	137	93	102	90	69	50	84	89	204
\$/cct-mi		.60	.41	.26	.24	.23	.26	.26	.24	.25	.25	.27
565 mbps DIGITAL FO SYSTEM		25 mi Repeater Spacing										
First Cost (\$000)		15391	67318	89421	71078	67390	21773	58750	56993	44188	48468	57794
96 fiber FO Cable		1031	4511	5993	4763	5856	1459	3937	3819	2961	3248	3873
96f Ca Splicing		1031	4511	5993	4763	5856	1459	3937	3819	2961	3248	3873
Cable Installation		2255	9855	13103	10416	12806	6381	17218	16703	12950	4735	8469
F.O. Mtr/Rcvr		3654	3108	2268	2268	2058	1512	1260	1932	2016	4368	2142
F.O. Line Repeater		7308	25901	25705	22681	22639	8568	18481	27693	22177	17472	15708
T/Rm Bldg, Power		900	4050	5400	4350	5250	2850	6900	6750	6250	2100	3600
N13 Mtr		32520	24360	17580	19680	16050	11640	9670	14820	15750	34380	16590
GRAND TOTAL - FC		61159	139112	169478	136488	152049	54183	116116	128711	105292	114772	108177
\$ per mile (000)		640	417	223	193	188	136	107	122	129	384	202
\$/cct-mi		.68	.41	.49	.47	.52	.52	.50	.37	.37	.50	.54
Annual Cost (\$000)		6243	27140	36051	28655	35233	8778	23686	22978	17815	19541	23301
96 fiber FO Cable		418	1819	2416	1920	2361	588	1587	1540	1194	1309	1561
96f Ca Splicing		418	1819	2416	1920	2361	588	1587	1540	1194	1309	1561
Cable Installation		610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909
F.O. Mtr/Rcvr		2608	2292	1960	1423	1581	1291	948	790	1212	1265	1344
F.O. Line Repeater		3478	16246	16123	14228	14228	5374	11592	17370	13910	10959	9853
T/Rm Bldg, Power		360	479	1618	2157	1738	2097	1138	2756	2696	2097	839
N13 Mtr		20398	17895	15280	11027	12344	10067	7301	6003	9296	9879	21564
GRAND TOTAL - AC		34115	68029	74480	64664	70412	26701	53356	61825	51381	56862	51317
\$ per mile (000)		357	230	109	98	87	66	49	59	63	197	96
\$/cct-mi		.49	.20	.23	.22	.24	.25	.23	.18	.18	.26	.26

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FIGURE 6.32: 17 NODE NETWORK
1985 TRAFFIC, 96f FO CABLE

Traffic Factor Mileage Factor	Route											Total
	11-5	12-4	13-9	13-14	14-10	15-1	16-5	16-12	17-10	17-15		
405 Mbps DIGITAL FO SYSTEM												
25 mi Repeater Spacing												
First Cost (\$000)												
96 fiber FO Cable	67440	36854	42500	86588	44001	23295	27726	60456	36268	60190	1271915	
96f Ca Splicing	4519	2470	2848	5803	2949	1561	1958	4052	2564	4670	86237	
Cable Installation	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175	
F.O. Mtr/Rcvr	2016	1512	756	1044	2016	2592	2304	432	3456	2016	53460	
F.O. Line Repeater	16800	14112	8064	22620	11424	7776	9448	6480	17280	17472	380484	
T/Rx Bldg, Power	4050	4500	5100	10050	2850	1650	1950	7050	2550	4200	92550	
M13 Mux	13740	10140	5070	6900	13560	17820	15900	2910	23550	13740	364800	
GRAND TOTAL - FC	118447	80389	76794	158382	83247	58107	62249	99112	93276	120161	2470621	
\$ per mile (000)	190	118	98	99	205	270	243	89	263	191	176	
\$/cct-mi	.62	.52	.86	.54	.67	.60	.60	1.36	.50	.62	.58	
Annual Cost (\$000)												
96 fiber FO Cable	27189	14858	17134	34909	17740	9391	11178	24378	15428	27492	512789	
96f Ca Splicing	1822	996	1148	2339	1189	629	749	1634	1034	1842	34364	
Cable Installation	3984	4355	5022	10231	2593	1376	1638	7144	2261	4029	89573	
F.O. Mtr/Rcvr	1285	948	474	655	1265	1626	1445	271	2168	1265	33532	
F.O. Line Repeater	10538	8852	5058	14188	7168	4877	5299	4065	10839	10959	238855	
T/Rx Bldg, Power	1618	1798	2037	4015	1138	659	779	2816	1019	1678	36370	
M13 Mux	8618	6360	3180	4328	8505	11177	9973	1825	14771	8618	228817	
GRAND TOTAL - AC	55034	38166	34054	70655	39602	29737	31061	42133	47519	55862	1174701	
\$ per mile (000)	86	56	43	44	97	136	121	38	134	69	84	
\$/cct-mi	.29	.25	.38	.29	.32	.36	.34	.58	.25	.29	.28	
565 Mbps DIGITAL FO SYSTEM												
25 mi Repeater Spacing												
First Cost (\$000)												
96 fiber FO Cable	33720	36854	42500	86588	22000	23295	27726	60456	38268	34095	1039564	
96f Ca Splicing	2260	2470	2848	5803	1474	1561	1958	4052	2564	2266	69556	
Cable Installation	3882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175	
F.O. Mtr/Rcvr	1806	1344	714	924	1764	2310	2058	420	3024	1806	47167	
F.O. Line Repeater	15080	12544	7816	20021	9996	6930	7546	6300	15120	15652	336854	
T/Rx Bldg, Power	4050	4500	5100	10050	2850	1650	1950	7050	2550	4200	92550	
M13 Mux	13740	10140	5070	6900	13560	17820	15900	2910	23550	13740	364800	
GRAND TOTAL - FC	80508	78653	76304	155662	58093	56979	61101	98920	90684	81771	2172576	
\$ per mile (000)	129	115	97	97	143	264	238	88	266	130	155	
\$/cct-mi	.42	.51	.86	.63	.47	.66	.67	1.36	.49	.42	.51	
Annual Cost (\$000)												
96 fiber FO Cable	13595	14858	17134	34909	8870	9391	11178	24378	15428	13746	266.03	
96f Ca Splicing	911	996	1148	2339	594	629	749	1634	1034	1842	34364	
Cable Installation	3984	4355	5022	10231	2593	1376	1638	7144	2261	4029	89573	
F.O. Mtr/Rcvr	1133	843	448	580	1106	1449	1291	263	1897	1133	29585	
F.O. Line Repeater	9440	7868	4777	12558	6270	4733	4984	3952	9484	9818	211163	
T/Rx Bldg, Power	1618	1798	2037	4015	1138	659	779	2816	1019	1678	36370	
M13 Mux	8618	6360	3180	4328	8505	11177	9973	1825	14771	8618	228817	
GRAND TOTAL - AC	39299	37078	33747	68959	29084	29029	30342	42013	45894	39942	1043309	
\$ per mile (000)	63	54	43	43	71	136	118	38	130	63	74	
\$/cct-mi	.20	.24	.38	.28	.24	.34	.33	.58	.25	.21	.26	

EXHIBIT 6.32A: 17 NODE NETWORK (1985)

405 mbps DIGITAL FO SYSTEM

25 mi Repeater Spacing

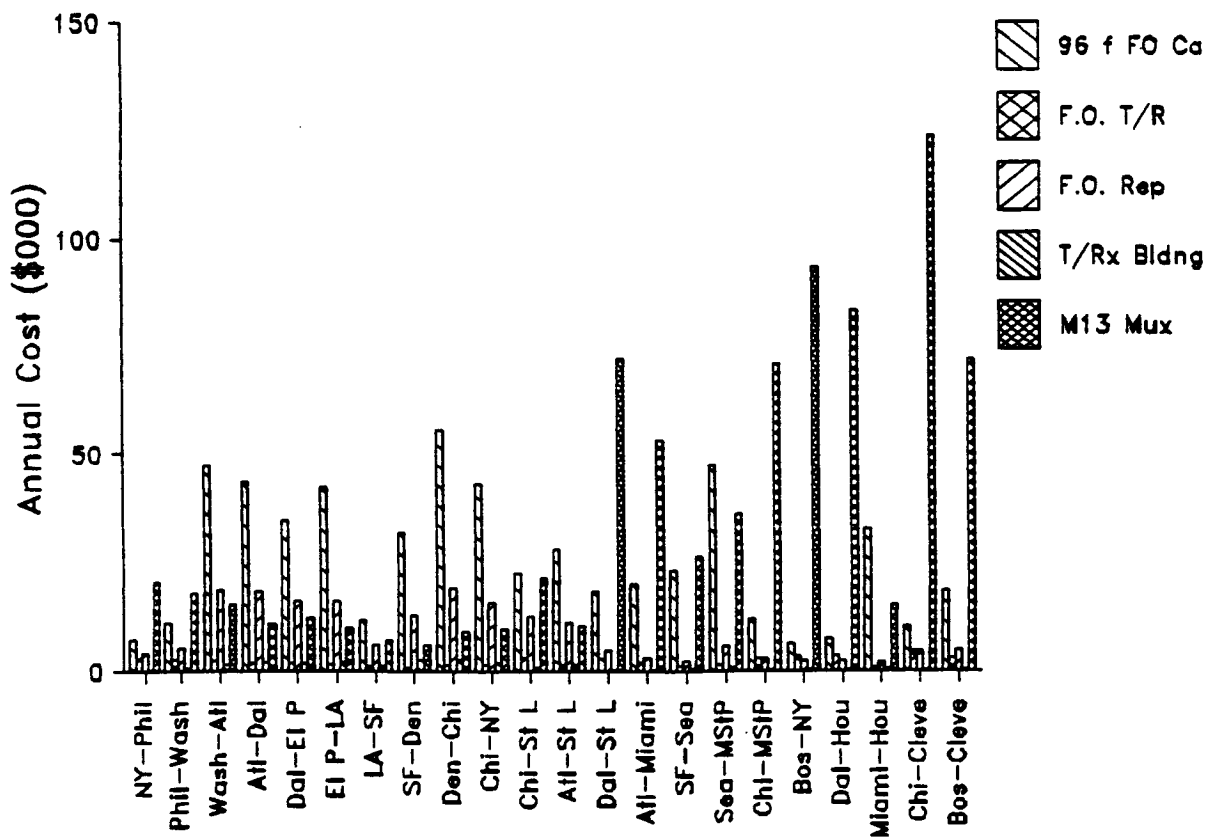
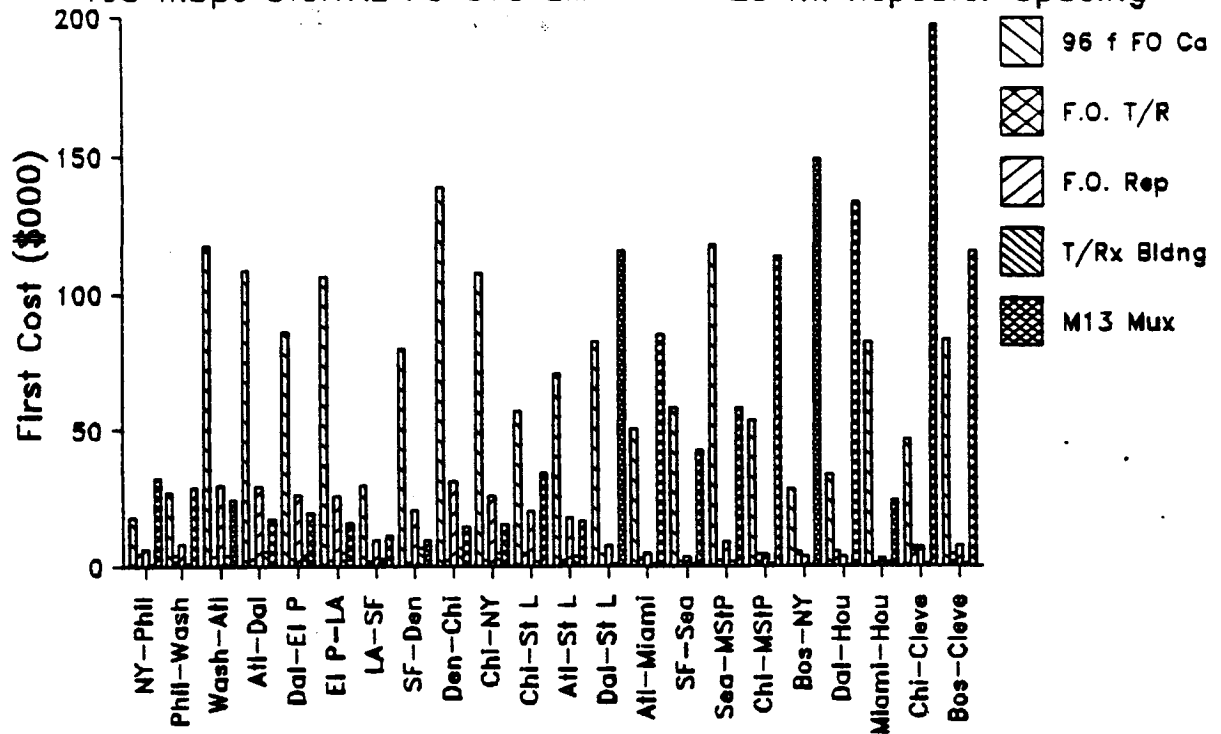


EXHIBIT 6.32B: 17 NODE NETWORK (1985)

565 mbps DIGITAL FO SYSTEM

25 mi Repeater Spacing

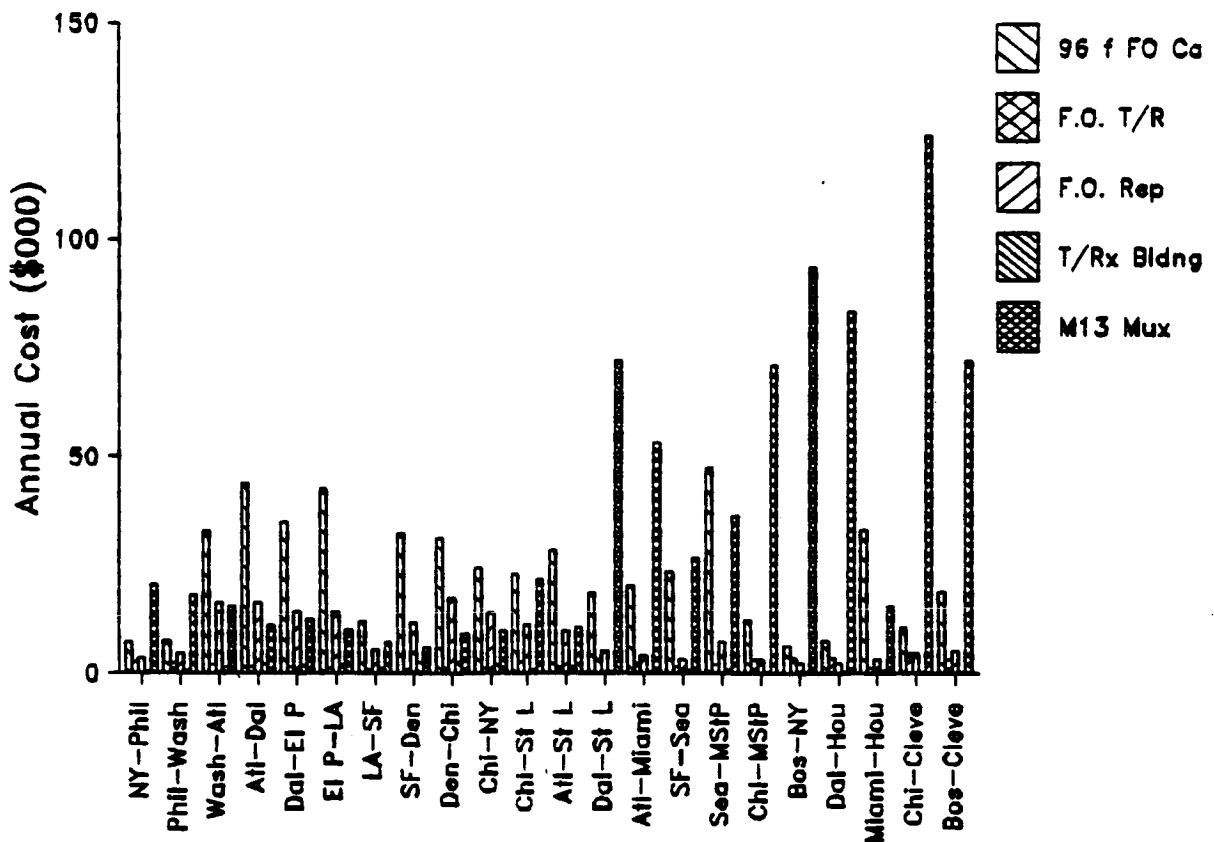
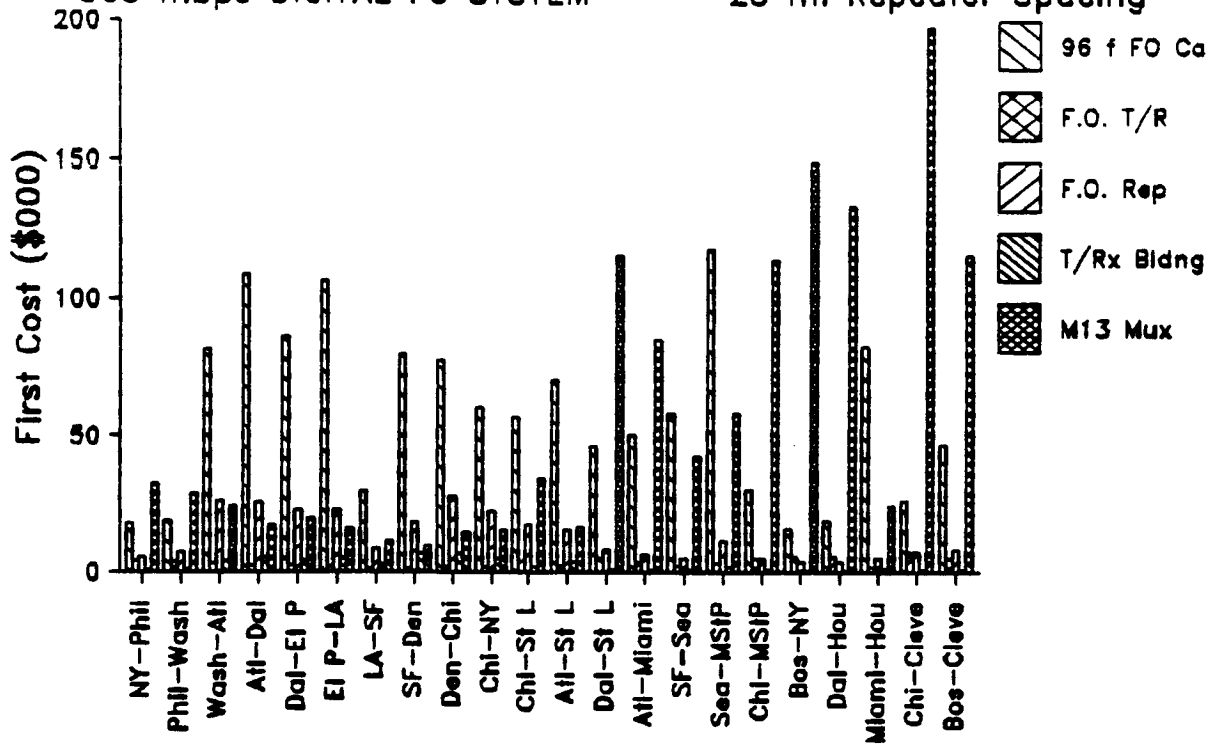


FIGURE 6.33: 17 NODE NETWORK 1990 TRAFFIC, 48f FO CABLE

Traffic Factor Mileage Factor	Route											
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4	
Actual Traffic	728034	638967	545605	393606	440705	359229	260674	214183	331711	352533	770006	371302
UF Ccts Req'd	970712	851956	727474	524808	587607	478972	347565	285577	442282	470044	1026678	495069
Initial Fill	-	-	-	-	-	-	-	-	-	-	-	-
Total UF Circuits	1213390	1064944	909342	656010	734509	598715	434457	356972	552852	587556	1283344	618836
System Mileage	95.51	142.38	622.76	827.24	687.55	808.45	402.85	1087.00	1054.49	817.57	296.92	534.66
Circuit Miles(000)	115886	151628	566301	542678	482974	484031	178019	388029	582979	480368	383616	330866
810 Mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing												
First Cost (\$000)	6183	12199	35572	47252	37559	46179	11505	31045	60233	46700	25611	30540
48 fiber FO Cable	554	825	2406	3196	2541	3124	778	2100	4075	3189	1733	2066
48f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12980	4735	8469
Cable Installation	3528	3087	2646	1953	2142	1764	1260	1071	1575	9996	3717	1827
F.O. Mtr/Rcur	2352	3087	11466	11067	9996	9996	3780	7854	11550	9996	7434	6699
F.O. Line Repeater	600	750	2250	2850	2400	2850	1650	3600	3600	2850	1200	1950
T/RM Bldg, Power	94815	83213	71085	51293	57435	46778	33968	27930	43208	45938	100275	48353
M13 Num	111544	105416	135290	130714	122488	123496	59322	90818	140943	123356	144705	99903
GRAND TOTAL - FC	1168	740	217	158	186	153	147	84	134	151	484	187
\$ per mile (000)	.96	.70	.24	.24	.25	.26	.34	.23	.24	.26	.36	.30
\$/cct-mi												
Annual Cost (\$000)	3299	4918	14341	19050	15142	18618	4638	12516	24284	18828	10326	12312
48 fiber FO Cable	223	333	970	1289	1024	1259	314	847	1643	1274	698	833
48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909	3414
Cable Installation	2213	1936	1660	1225	1344	1106	790	672	988	1106	2331	1146
F.O. Mtr/Rcur	1475	1936	7192	6942	6270	6270	2371	4926	7245	6270	4663	4202
F.O. Line Repeater	240	300	899	1138	959	1138	659	1438	1438	1138	479	779
T/RM Bldg, Power	59472	52194	44587	32173	36026	29341	21306	17519	27101	28814	62896	30329
M13 Num	67532	62527	73626	67100	64964	62895	32651	44859	69432	62851	83303	53015
GRAND TOTAL - AC	707	439	118	81	99	78	81	41	66	77	279	99
\$ per mile (000)	.58	.41	.13	.12	.13	.13	.19	.12	.12	.13	.22	.16
\$/cct-mi												
1.7 Gbps DIGITAL FO SYSTEM 50 mi Repeater Spacing												
First Cost (\$000)	5455	8133	17786	23626	18780	23089	11505	31045	30116	23350	17074	15270
48 fiber FO Cable	369	550	1203	1598	1270	1562	778	2100	2037	1580	1155	1033
48f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735	8469
Cable Installation	3654	3150	2646	2016	2268	1890	1260	1134	1638	1890	3780	1890
F.O. Mtr/Rcur	2436	3150	11466	11424	10584	10710	3780	8316	12012	10710	7560	6930
F.O. Line Repeater	600	750	2250	2850	2400	2850	1650	3600	3600	2850	1200	1950
T/RM Bldg, Power	94815	83213	71085	51293	57435	46778	33968	27930	43208	45938	100275	48353
M13 Num	108842	101201	14587	105910	103152	99685	59322	91343	109314	99267	135779	83894
GRAND TOTAL - FC	1140	711	187	128	157	123	147	84	104	121	454	157
\$ per mile (000)	.94	.67	.21	.20	.21	.21	.34	.24	.19	.21	.35	.25
\$/cct-mi												
Annual Cost (\$000)	2199	3279	7171	9525	7571	9309	4638	12516	12142	9414	6884	6156
48 fiber FO Cable	149	222	485	644	512	630	314	847	921	637	466	416
48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909	3414
Cable Installation	2292	1976	1660	1265	1423	1185	790	711	1027	1185	2371	1185
F.O. Mtr/Rcur	1528	1976	7192	7166	6639	6718	2371	5216	7534	6718	4742	4347
F.O. Line Repeater	240	300	899	1138	969	1138	659	1438	1438	1138	479	779
T/RM Bldg, Power	59472	52194	44587	32173	36026	29341	21306	17519	27101	28814	62896	30329
M13 Num	66489	60855	65970	57194	57328	53484	32651	45189	56799	53127	79747	46627
GRAND TOTAL - AC	696	427	106	69	87	66	81	42	54	65	267	87
\$ per mile (000)	.57	.40	.12	.11	.12	.11	.19	.12	.10	.11	.21	.14
\$/cct-mi												

FIGURE 6.33: 17 NODE NETWORK 1990 TRAFFIC, 48F FO CABLE

17 NODE NETWORK

1990 TRAFFIC, 48F FO CABLE

Traffic Factor 1.14
Mileage Factor 1.15

Route	11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	Total
Actual Traffic	307258	226900	113397	154394	303327	398517	355623	65078	527498	307872	
WF Ccts Req'd	410344	302533	151195	205858	404436	531356	474164	86770	703331	410096	
Initial Fill											
Total WF Circuits	512930	378166	188994	257323	505546	664195	592705	108463	879163	512620	13611031
System Mileage	623.89	681.88	786.34	1602.07	407.05	215.50	266.60	1118.75	354.02	630.63	14026.19
Circuit Miles(000)	320010	257864	148613	412248	205784	143133	162026	121343	311238	323377	7060015

810 Mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing

First Cost (\$000)	17818	19475	22458	45755	11625	12309	14651	31952	20221	18017	606858
48 fiber FO Cable	1205	1317	1519	3095	786	833	991	2161	1368	1219	41052
48f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	1512	1134	567	756	1449	1953	1764	378	2583	1512	39942
F.O. Intr/Reor	6552	5292	3024	8316	4347	3255	3528	2898	6888	6562	145929
F.O. Line Repeater	2250	2400	2700	5250	1650	1050	1200	3750	1500	2250	50550
T/Rm Bldg, Power	40110	29558	14805	20108	39533	51923	46358	8505	68723	40058	1063965
M13 Rm	79330	69976	57528	108656	65838	74736	72555	67365	106890	79599	2170471
GRAND TOTAL - FC	127	103	73	68	162	347	283	60	302	126	185
\$ per mile (000)	.25	.27	.39	.26	.32	.52	.48	.56	.34	.25	.31
\$/cct-mi											

Annual Cost (\$000)	7184	7851	9054	18447	4587	4963	5907	12882	8153	7264	244663
48 fiber FO Cable	486	531	612	1246	317	336	400	871	551	491	16551
48f Ca Splicing	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
Cable Installation	948	711	356	474	909	1225	1106	237	1620	948	25053
F.O. Intr/Reor	4110	3319	1897	5216	2727	2042	2213	1818	4320	4110	91532
T/Rm Bldg, Power	899	959	1079	2097	639	419	479	1498	599	899	20193
M13 Rm	25159	18540	9286	12612	24796	32568	29077	5335	43105	25126	667361
GRAND TOTAL - AC	42769	36266	27305	50325	36694	42929	40820	29785	60610	42866	1154926
\$ per mile (000)	.69	.53	.35	.31	.90	.199	.159	.27	.171	.68	.82
\$/cct-mi	.13	.14	.18	.12	.18	.30	.27	.25	.19	.13	.16

1.7 Gbps DIGITAL FO SYSTEM 50 mi Repeater Spacing

First Cost (\$000)	17818	19475	22458	45755	11625	6155	7326	31952	10111	18017	415919
48 fiber FO Cable	1205	1317	1519	3095	786	416	496	2161	684	1219	28136
48f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	1512	1134	630	882	1512	2016	1890	504	2646	1512	41454
F.O. Intr/Reor	6552	5292	3360	9702	4536	3360	3780	3864	7056	6562	153132
F.O. Line Repeater	2250	2400	2700	5250	1650	1050	1200	3750	1500	2250	50550
T/Rm Bldg, Power	40110	29558	14805	20108	39533	51923	46358	8505	68723	40058	1063965
M13 Rm	79330	69976	57527	110168	66090	68333	65111	66457	96327	79599	1975331
GRAND TOTAL - FC	127	103	74	69	162	317	254	61	272	126	141
\$ per mile (000)	.25	.27	.39	.27	.32	.48	.43	.56	.31	.25	.28
\$/cct-mi											

Annual Cost (\$000)	7184	7851	9054	18447	4587	2481	2953	12882	4076	7264	167683
48 fiber FO Cable	486	531	612	1246	317	168	200	871	276	491	11343
48f Ca Splicing	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
Cable Installation	948	711	355	593	948	1265	1185	316	1660	948	26002
F.O. Intr/Reor	4110	3319	2108	6086	2845	2108	2371	2424	4426	4110	96050
F.O. Line Repeater	899	959	1079	2097	639	419	479	1498	599	899	20193
T/Rm Bldg, Power	25159	18540	9286	12612	24796	32568	29077	5335	43105	25126	667361
M13 Rm	42769	36266	27305	51274	36853	40385	37904	30470	56403	42866	1078205
GRAND TOTAL - AC	69	53	35	32	91	187	146	27	159	68	77
\$ per mile (000)	.13	.14	.19	.12	.18	.28	.25	.25	.18	.13	.15
\$/cct-mi											

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EXHIBIT 6.33A: 17 NODE NETWORK (1990)

810 mbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

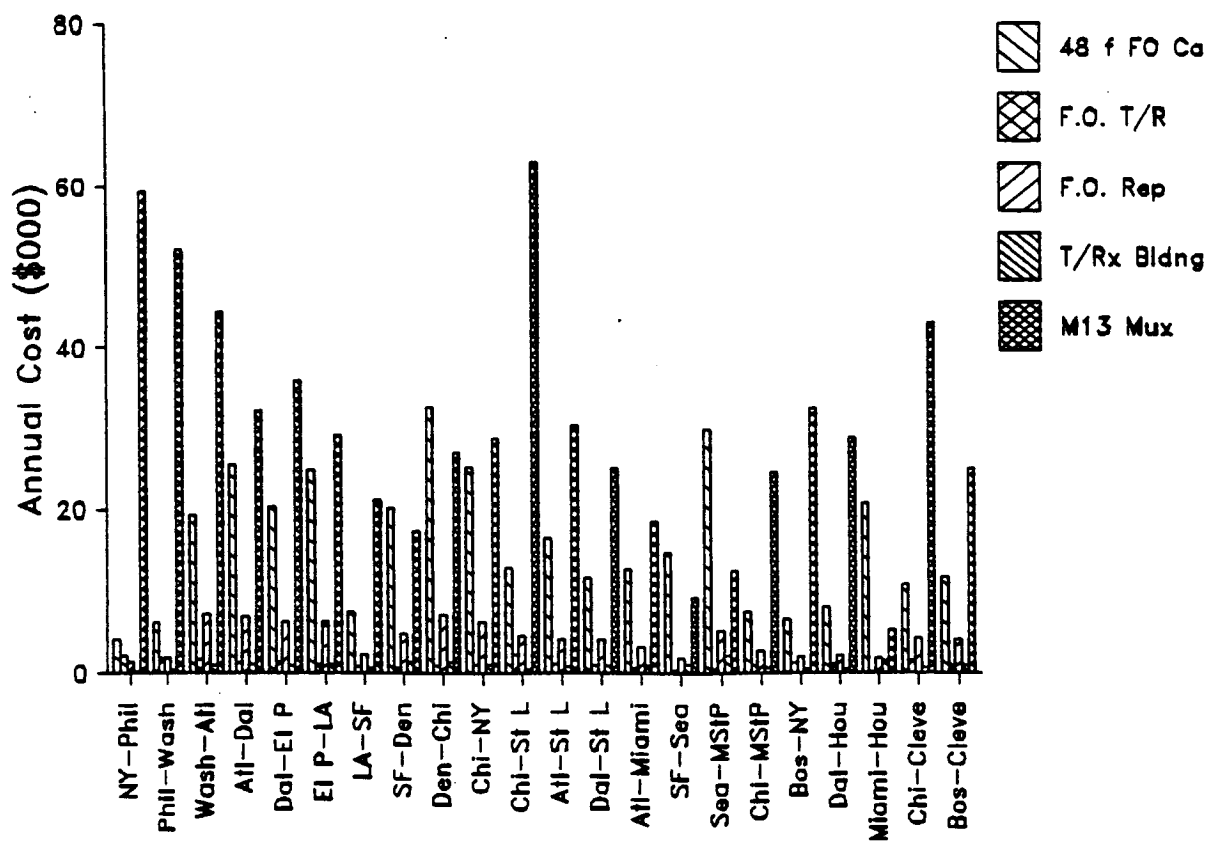
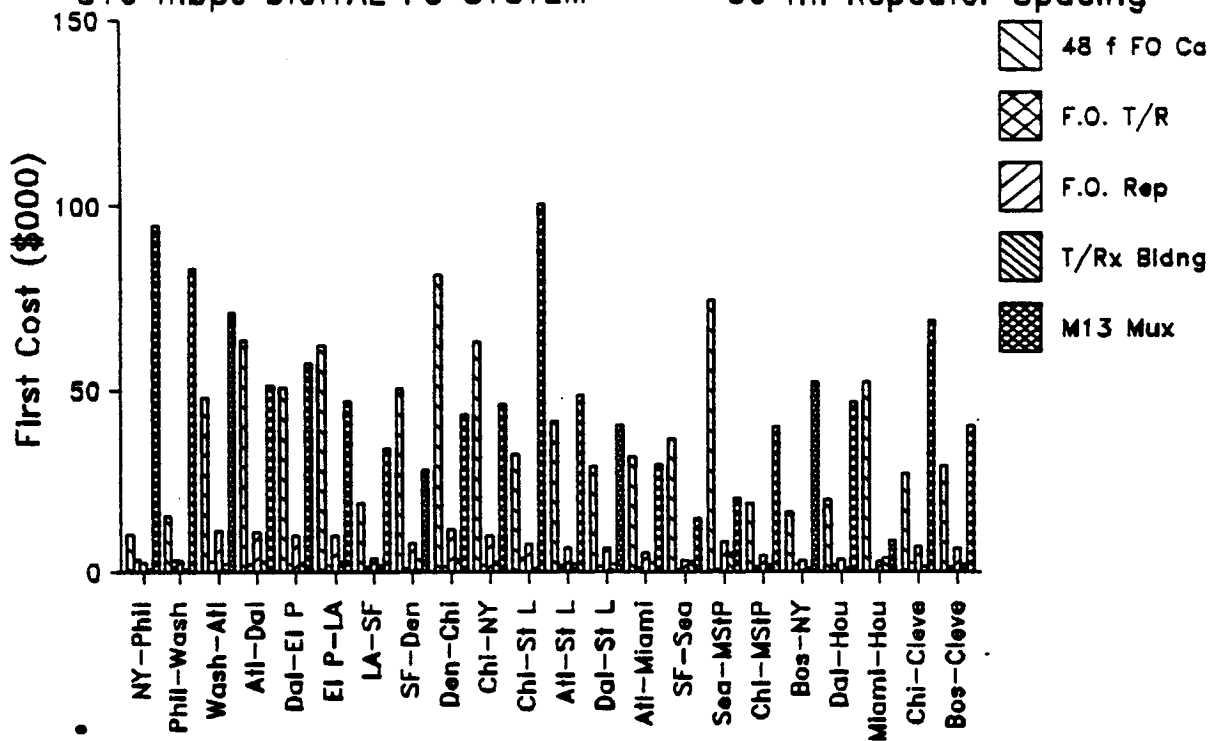


EXHIBIT 6.33B: 17 NODE NETWORK (1990)

1.7 Gbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

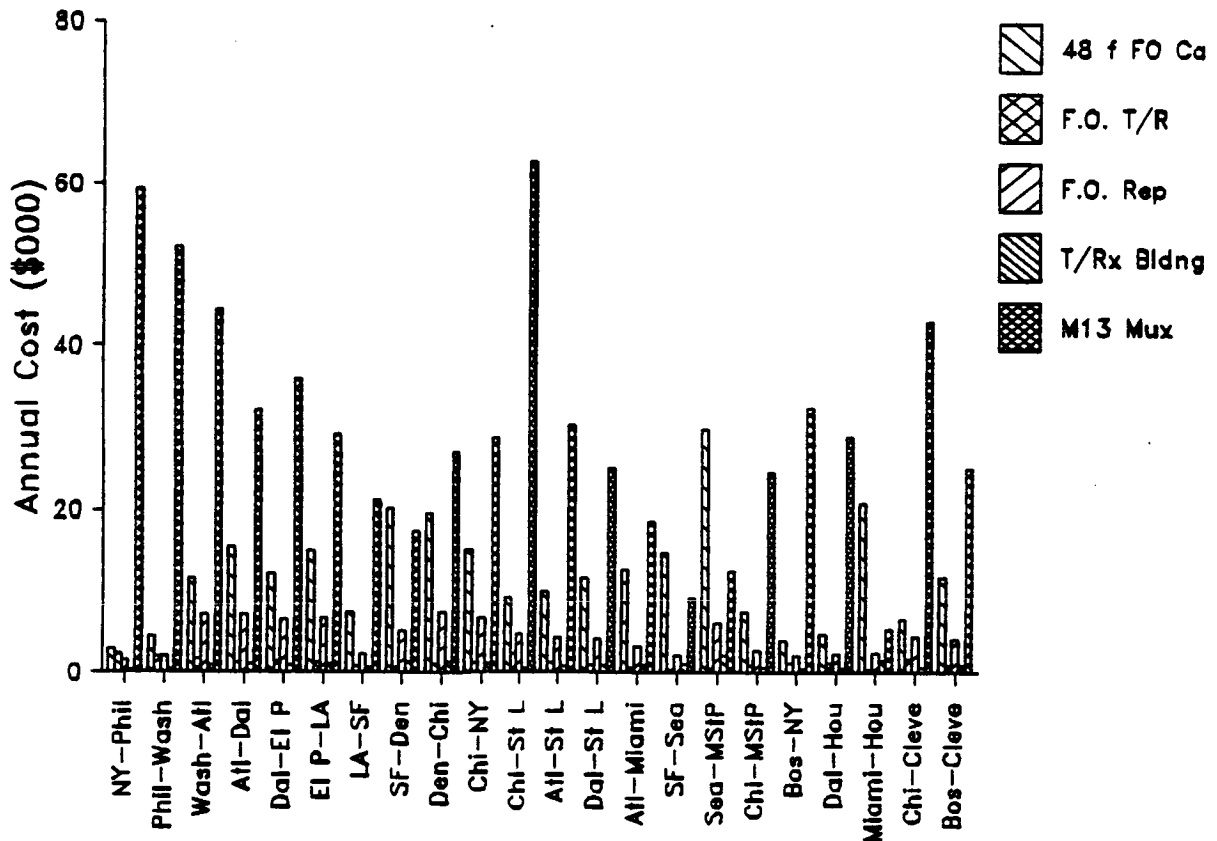
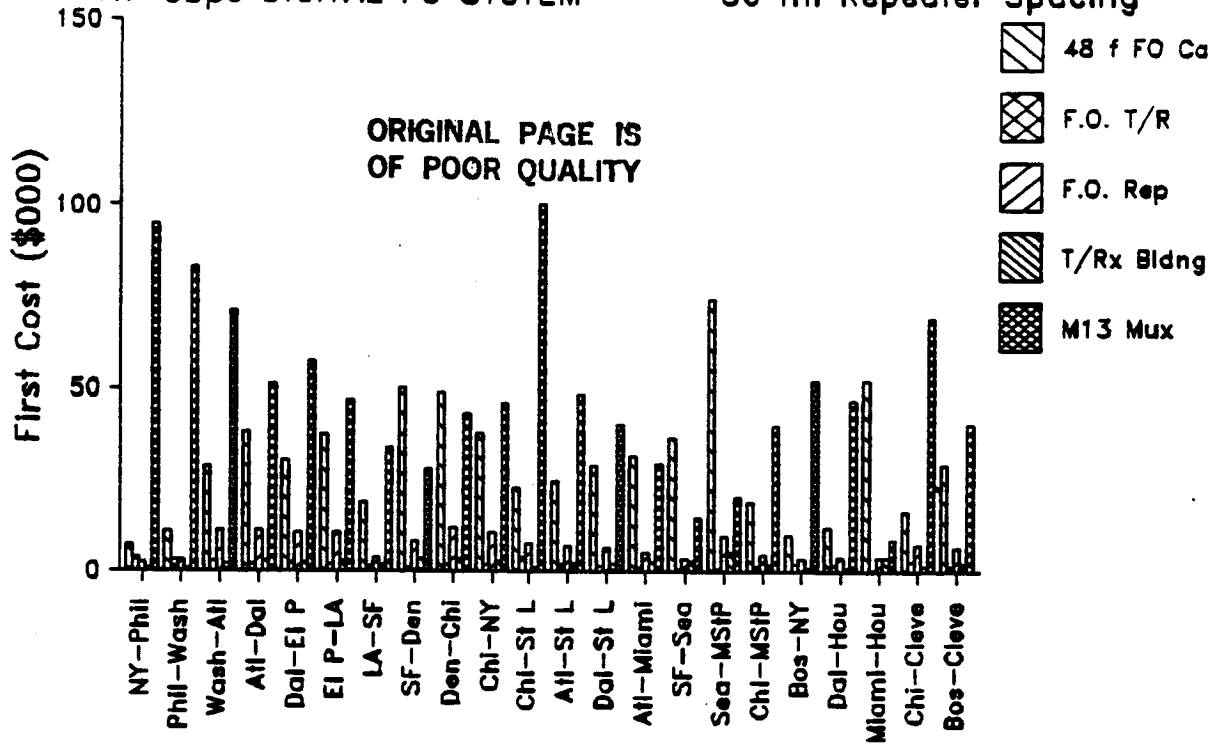


FIGURE 6.34: 1990 TRAFFIC, 96f FO CABLE

17 NODE NETWORK

Traffic Factor
1.14
Mileage Factor
1.15

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-1	10-11	11-4
Actual Traffic	728034	638967	545605	393606	440705	359229	260674	214183	331711	352533	770006	371302
W/Cts Req'd	970712	851956	727474	524808	587607	478972	347565	285577	442282	470044	1026678	495069
Initial Fill	1213390	1064944	909342	656010	734509	598715	434457	356372	552852	587556	1283344	618836
Total W/Cts	95.51	142.38	622.76	827.24	657.55	808.45	827.85	1087.00	1054.49	617.57	296.92	534.66
System Mileage	115888	151628	566301	842678	482974	484031	175019	388029	582979	480368	385616	330866
Circuit Miles(000)												
810 Mbps DIGITAL FO SYSTEM												
50 mi Repeater Spacing												
First Cost (\$000)	10324	15391	33659	44711	35539	43695	21773	58750	56993	44188	32312	28897
96 fiber FO Cable	692	1031	2256	2996	2382	2928	1459	3937	3819	2961	2165	1937
96f Ca Splicing	1513	2255	9865	13103	10416	12806	6361	17218	16703	12950	4735	8469
Cable Installation	3528	3087	2646	1953	2142	1764	1260	1071	1575	12980	3717	1827
F.O. Mtr/Rcur	2352	3087	11466	11067	9996	9996	3780	7854	11850	9996	7434	6699
F.O. Line Repeater	600	750	2250	2850	2400	2850	1650	3600	3600	2850	1200	1950
T/Rm Bldg, Power	94815	83213	71085	51293	57435	46778	33968	27930	43208	45938	100275	48353
M13 Num	113824	108814	133226	127973	120309	120817	70271	120361	137448	120647	151838	98131
GRAND TOTAL - FC	1192	764	214	155	183	149	174	111	130	148	808	184
\$ per mile (000)												
\$/cct-mi	.98	.72	.24	.24	.25	.25	.40	.31	.24	.25	.40	.30
Annual Cost (\$000)												
96 fiber FO Cable	4162	6205	13570	18026	14328	17616	8778	23686	22978	17815	13027	11650
96f Ca Splicing	279	416	909	1208	960	1181	588	1597	1540	1194	873	781
Cable Installation	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909	3414
F.O. Mtr/Rcur	2213	1936	1660	1225	1344	1106	790	672	988	1106	2331	1146
F.O. Line Repeater	1475	1936	7192	6942	6270	6270	2371	4926	7245	6270	4663	4202
T/Rm Bldg, Power	240	300	899	1138	959	1138	659	1438	1438	1138	479	779
M13 Num	59472	52194	44587	32173	36026	29341	21306	17519	27101	28814	62896	30329
GRAND TOTAL - AC	68451	63896	72794	65994	64085	61815	37065	56770	68024	61559	86179	52301
\$ per mile (000)												
\$/cct-mi	.59	.42	.13	.12	.13	.13	.21	.15	.12	.13	.22	.16
1.7 Gbps DIGITAL FO SYSTEM												
50 mi Repeater Spacing												
First Cost (\$000)	5162	7695	33659	44711	35539	43695	21773	58750	56993	44188	16156	28897
96 fiber FO Cable	346	516	2256	2996	2382	2928	1459	3937	3819	2961	1083	1937
96f Ca Splicing	1513	2255	9865	13103	10416	12806	6361	17218	16703	12950	4735	8469
Cable Installation	3654	3150	2646	2016	2268	1890	1260	1134	1638	1890	3780	1890
F.O. Mtr/Rcur	2436	3150	11466	11424	10584	10710	3780	8316	12012	10710	7560	6930
F.O. Line Repeater	600	750	2250	2850	2400	2850	1650	3600	3600	2850	1200	1950
T/Rm Bldg, Power	94815	83213	71085	51293	57435	46778	33968	27930	43208	45938	100275	48353
M13 Num	108526	100729	133226	128393	121023	121657	70271	120896	137973	121487	134789	98425
GRAND TOTAL - FC	1136	707	214	155	184	150	174	111	131	149	451	184
\$ per mile (000)												
\$/cct-mi	.94	.66	.24	.24	.25	.25	.40	.31	.24	.25	.35	.30
Annual Cost (\$000)												
96 fiber FO Cable	2081	3103	13570	18026	14328	17616	8778	23686	22978	17815	13027	11650
96f Ca Splicing	139	208	909	1208	960	1181	588	1597	1540	1194	873	781
Cable Installation	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909	3414
F.O. Mtr/Rcur	2292	1976	1660	1265	1423	1185	790	1185	1027	1185	2371	1185
F.O. Line Repeater	1528	1976	7192	7166	6639	6718	2371	5216	7534	6718	4742	4347
T/Rm Bldg, Power	240	300	899	1138	959	1138	659	1438	1438	1138	479	779
M13 Num	59472	52194	44587	32173	36026	29341	21306	17519	27101	28814	62896	30329
GRAND TOTAL - AC	66362	60665	72794	66258	64533	62342	37065	57099	68363	62085	79348	52485
\$ per mile (000)												
\$/cct-mi	.57	.40	.13	.12	.13	.13	.21	.15	.12	.13	.21	.16

FIGURE 6.34: 17 NODE NETWORK 1990 TRAFFIC, 96f FD CABLE

Traffic Factor Mileage Factor	Route	17 NODE NETWORK										Total
		11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	
Actual Traffic		307758	226900	113397	154394	303327	390517	359523	65078	527498	307572	
VF Ccts Req'd		410344	302533	151195	205858	404436	531356	474164	86770	703331	410096	
Initial Fill												
Total VF Circuits		512930	378166	188994	257323	505546	664195	592705	106463	879163	512620	13611031
System Mileage		623.89	681.88	786.34	1602.07	407.05	215.50	266.50	1118.75	364.02	630.83	14026.19
Circuit Miles (000)		320010	257864	148613	412248	205784	143133	162026	121343	311238	323377	7080015
810 Mbps DIGITAL FD SYSTEM 50 mi Repeater Spacing												
First Cost (\$000)		33720	36854	42500	86588	22000	11647	13863	60466	19134	34095	787101
96 fiber FO Cable		2260	2470	2848	5803	1474	781	929	4052	1282	2285	52747
96f Ca Splicing		9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation		1512	1134	567	756	1449	1953	1764	378	2863	1512	39942
F.O. Retr/Rcvr		6552	5292	3024	8316	4347	3255	3528	2898	6888	6552	145929
F.O. Line Repeater		2250	2400	2700	5250	1650	1050	1200	3750	1500	2250	50550
1/RM Bldng, Power		40110	29558	14805	20108	39533	51923	46358	8505	68723	40058	1063965
M13 Rm		96286	88509	78900	152197	76901	74022	71705	97771	105717	96744	2362409
GRAND TOTAL - FC		154	130	100	95	189	343	280	87	299	153	168
\$ per mile (000)		.30	.34	.53	.37	.37	.52	.47	.81	.34	.30	.33
\$/cct-mi												
Annual Cost (\$000)		13595	14858	17134	34909	8870	4696	5589	24378	7714	13746	317330
96 fiber FO Cable		911	996	1148	2339	594	315	375	1634	517	921	21266
96f Ca Splicing		3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
Cable Installation		948	711	356	474	909	1225	1106	237	1620	948	25053
F.O. Retr/Rcvr		4110	3319	1897	5216	2727	2042	2213	1818	4320	4110	91532
1/RM Bldng, Power		899	959	1079	2097	659	419	479	1498	599	899	20193
M13 Rm		25159	18540	9286	12612	24796	32568	29077	5335	43105	25126	667361
GRAND TOTAL - RC		49605	43738	35922	67879	41155	42641	40478	42043	60137	49778	1232308
\$ per mile (000)		80	64	46	42	101	198	158	38	170	79	88
\$/cct-mi		.16	.17	.24	.16	.20	.30	.27	.35	.19	.15	.17
1.7 Gbps DIGITAL FD SYSTEM 50 mi Repeater Spacing												
First Cost (\$000)		33720	36854	42500	86588	22000	11647	13863	60466	19134	34095	788088
96 fiber FO Cable		2260	2470	2848	5803	1474	781	929	4052	1282	2285	50503
96f Ca Splicing		9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation		1512	1134	567	756	1449	1953	1764	378	2863	1512	41454
F.O. Retr/Rcvr		6552	5292	3024	8316	4347	3255	3528	2898	6888	6552	153132
F.O. Line Repeater		2250	2400	2700	5250	1650	1050	1200	3750	1500	2250	50550
1/RM Bldng, Power		40110	29558	14805	20108	39533	51923	46358	8505	68723	40058	1063965
M13 Rm		96286	88509	78900	152197	76901	74190	72083	98663	105948	96744	2340166
GRAND TOTAL - FC		154	130	101	96	190	344	281	86	299	153	167
\$ per mile (000)		.30	.34	.53	.37	.37	.52	.47	.81	.34	.30	.33
\$/cct-mi												
Annual Cost (\$000)		13595	14858	17134	34909	8870	4696	5589	24378	7714	13746	305633
96 fiber FO Cable		911	996	1148	2339	594	315	375	1634	517	921	20482
96f Ca Splicing		3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
Cable Installation		948	711	356	474	909	1225	1106	237	1620	948	26002
F.O. Retr/Rcvr		4110	3319	1897	5216	2727	2042	2213	1818	4320	4110	96160
1/RM Bldng, Power		899	959	1079	2097	659	419	479	1498	599	899	20193
M13 Rm		25159	18540	9286	12612	24796	32568	29077	5335	43105	25126	667361
GRAND TOTAL - RC		49605	43738	35922	67879	41155	42746	40715	42728	60282	49778	1225294
\$ per mile (000)		80	64	46	43	101	198	159	38	170	79	87
\$/cct-mi		.16	.17	.24	.17	.20	.30	.27	.35	.19	.15	.17

EXHIBIT 6.34A: 17 NODE NETWORK (1990)

810 mbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

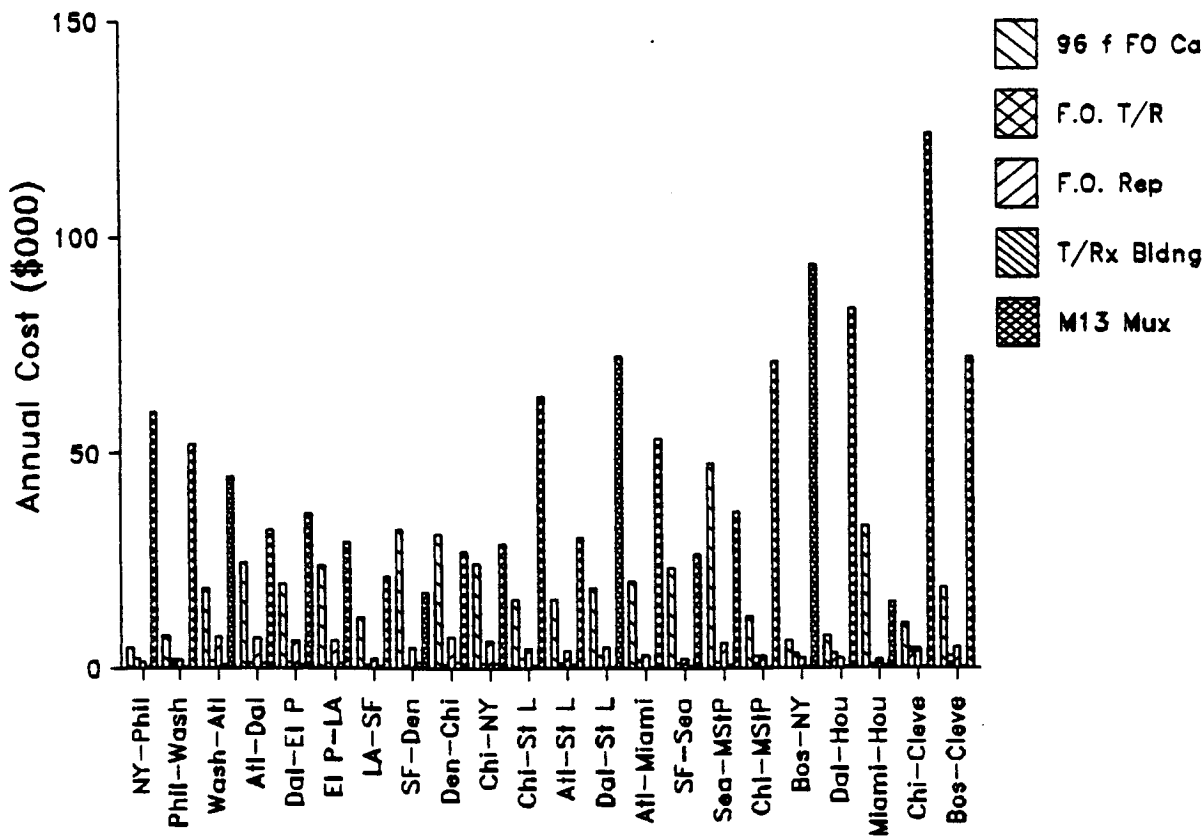
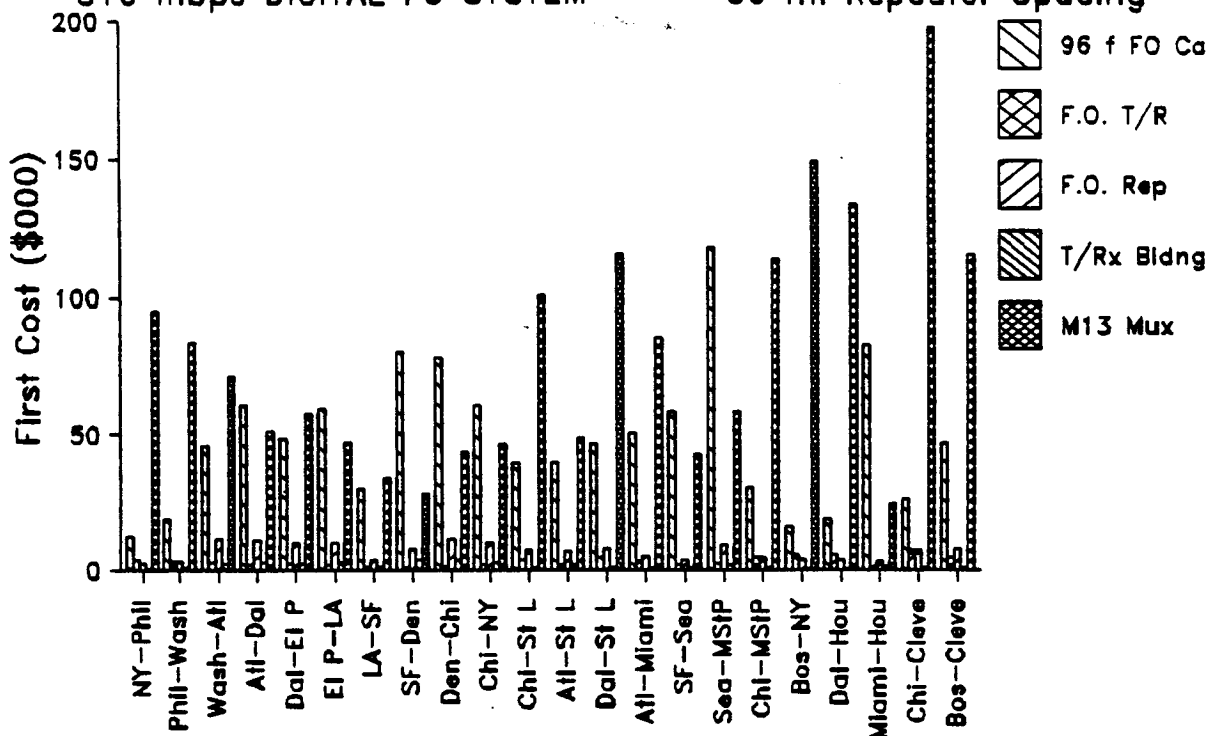


EXHIBIT 6.34B: 17 NODE NETWORK (1990)

1.7 Gbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

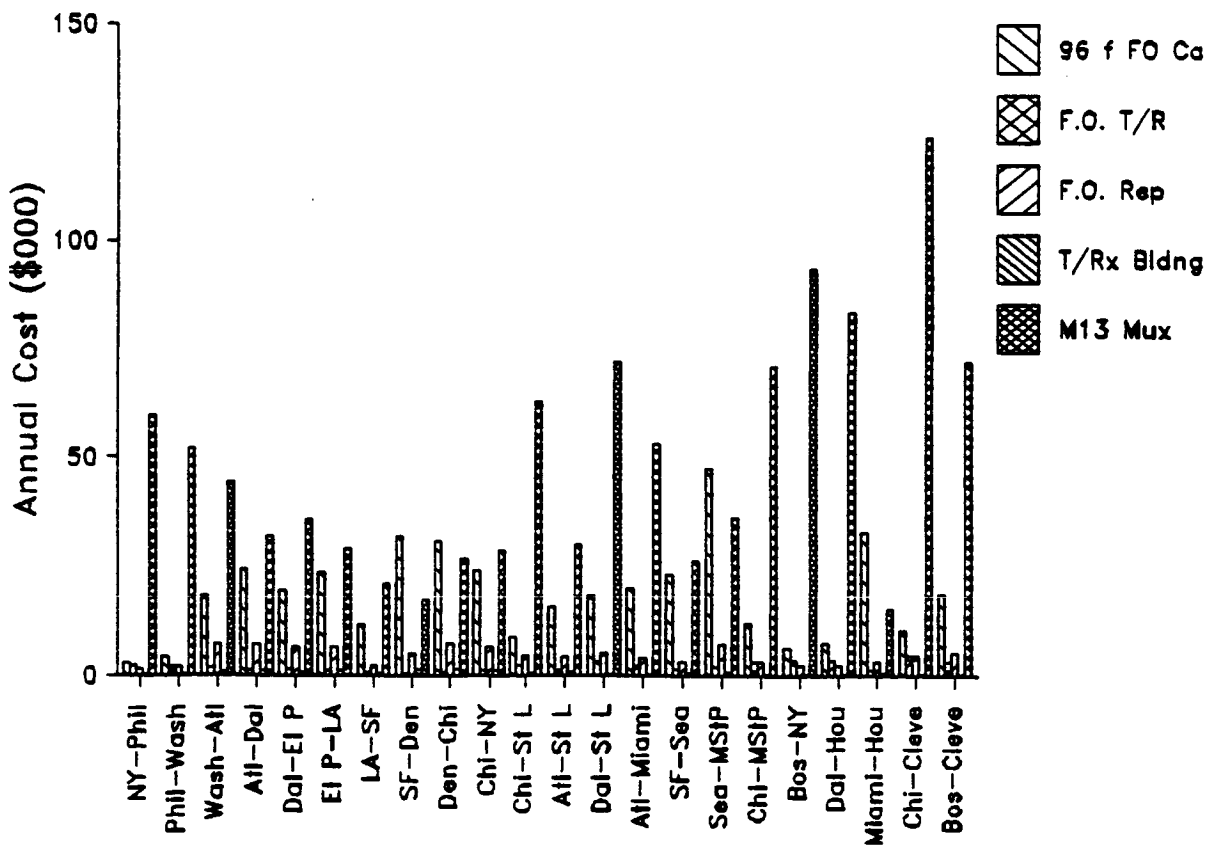
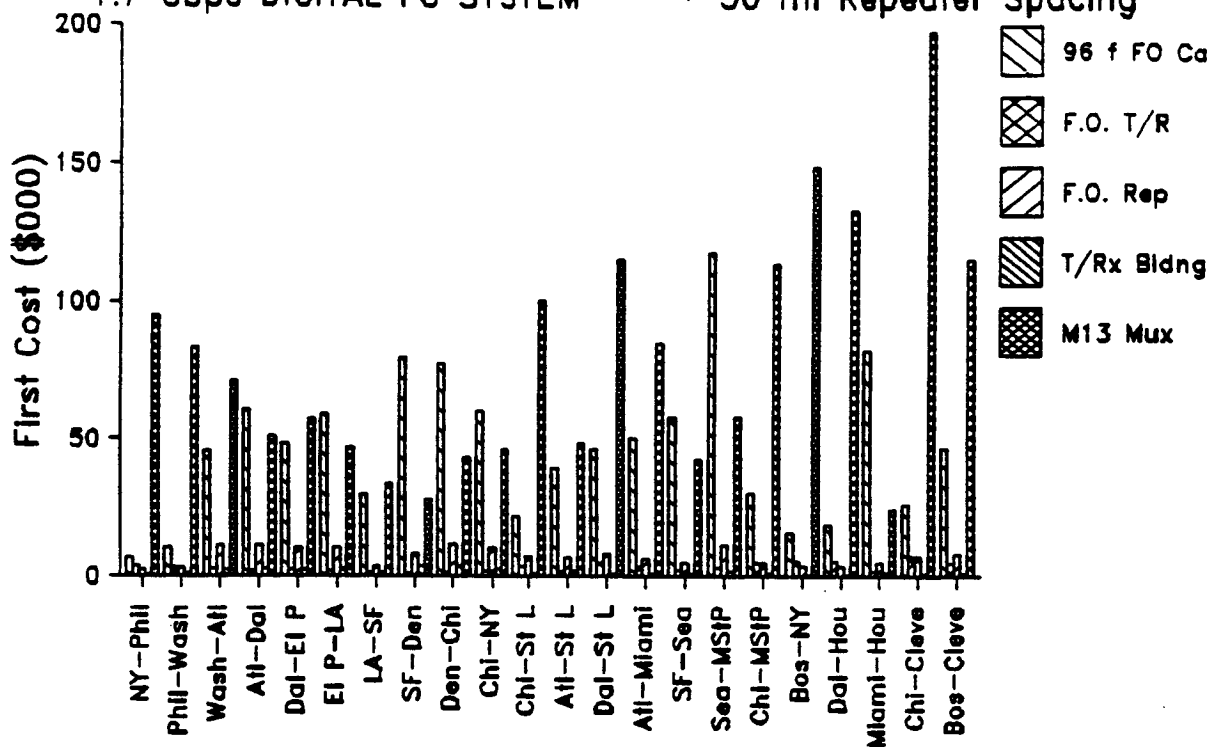


FIGURE 6.35: 1995 TRAFFIC, 48f FO CABLE

17 NODE NETWORK

Traffic Factor Mileage Factor	1.955 1.15	Route													
		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-1	10-11	11-4		
Actual Traffic	1248514	1095772	935665	675000	755771	616046	447033	367305	568856	604564	1320493	636750	849000		
VF Ccts Req'd	1664685	1461029	1247553	899999	1007694	821395	596044	489740	758475	806065	1760657	849000			
Initial Fill	-6	1826286	1559442	1124999	1259618	1026744	745055	612175	948093	1007606	2200822	1061250	534.66		
Total VF Circuits	95.51	142.38	622.76	827.24	657.55	808.45	402.85	1087.00	1054.49	817.57	298.92	534.66	567406		
System Mileage	198737	260029	971157	930645	828258	830071	300142	665436	999757	823788	657869	567406			
Circuit Miles(000)															
1.7 Gbps DIGITAL FO SYSTEM															
100 mi Repeater Spacing															
First Cost (\$000)	5455	8133	35572	47252	37559	23089	11505	31045	30116	23350	25611	15270			
48 fiber FO Cable	369	550	2406	3196	2541	1562	778	2100	2037	1580	1733	1033			
48f Ca Splicing	1513	2255	9665	13103	10416	12806	6361	17218	16703	12950	4735	8469			
Cable Installation	6048	5292	4536	3276	3780	3024	2268	1890	2772	2698	6300	3024			
F.O. Mtr/Rcr	2016	3528	10584	9828	8620	9072	3780	6930	10164	8694	6300	6048			
F.O. Line Repeater	450	600	1350	1650	1350	1650	1050	1950	1950	1650	750	1200			
T/RM Bldg, Power	162593	142695	121853	87938	98438	80220	58223	47828	74078	78750	171990	82950			
M13 Mtr	178444	163053	186165	166243	162903	131423	83985	108961	137820	129872	217419	117994			
GRAND TOTAL - FC	1868	1145	299	201	248	163	208	100	131	159	727	221			
\$ per mile (000)	.90	.63	.19	.18	.20	.16	.28	.16	.14	.16	.33	.21			
\$/cct-mi															
Annual Cost (\$000)	2199	3279	14341	19050	15142	9309	4638	12516	12142	9414	10326	6156			
48 fiber FO Cable	149	222	970	1289	1024	630	314	847	821	637	698	416			
48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909	3414			
Cable Installation	3794	3319	2845	2055	2371	1897	1423	1185	1739	1818	3952	1897			
F.O. Mtr/Rcr	1265	2213	6639	6165	5532	5690	2371	4347	6375	5453	3952	3794			
F.O. Line Repeater	180	240	539	659	539	659	419	779	779	659	300	479			
T/RM Bldg, Power	101984	89504	76431	55158	61744	50317	36519	29999	46464	49395	107879	52030			
M13 Mtr	110180	99686	105742	89658	90552	73665	48257	56615	75055	72597	129015	68186			
GRAND TOTAL - AC	1154	700	170	108	138	91	120	52	71	69	432	128			
\$ per mile (000)	.55	.38	.11	.10	.11	.09	.16	.09	.08	.09	.20	.12			
\$/cct-mi															
4.05 Gbps DIGITAL FO SYSTEM															
100 mi Repeater Spacing															
First Cost (\$000)	2728	4066	17786	23626	18780	23089	11505	31045	30116	23350	9537	15270			
48 fiber FO Cable	185	275	1203	1598	1270	1562	778	2100	2037	1580	578	1033			
48f Ca Splicing	1513	2255	9665	13103	10416	12806	6361	17218	16703	12950	4735	8469			
Cable Installation	6300	5670	4725	3465	3780	3150	2520	2205	2835	3150	6615	3150			
F.O. Mtr/Rcr	2100	3780	11025	10395	8820	9450	4200	8085	10395	9450	6615	6300			
F.O. Line Repeater	450	600	1350	1650	1350	1650	1050	1950	1950	1650	750	1200			
T/RM Bldg, Power	162593	142695	121853	87938	98438	80220	58223	47828	74078	78750	171990	82950			
M13 Mtr	175868	159342	167806	141775	142853	131927	84657	110431	138114	130880	199820	118372			
GRAND TOTAL - FC	1841	1119	269	171	217	163	210	102	131	160	668	221			
\$ per mile (000)	.86	.61	.17	.15	.17	.16	.28	.17	.14	.16	.30	.21			
\$/cct-mi															
Annual Cost (\$000)	1100	1639	7171	9525	7571	9309	4638	12516	12142	9414	3442	6156			
48 fiber FO Cable	74	111	485	644	512	630	314	847	821	637	698	416			
48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909	3414			
Cable Installation	3952	3556	2964	2173	2371	1976	1581	1383	1778	1976	4149	1976			
F.O. Mtr/Rcr	1317	2371	6915	6520	5532	5927	2634	5071	6520	5927	4149	3952			
F.O. Line Repeater	180	240	539	659	539	659	419	779	779	659	300	479			
T/RM Bldg, Power	101984	89504	76431	55158	61744	50317	36519	29999	46464	49395	107879	52030			
M13 Mtr	109217	98331	98482	79963	82469	73981	48679	57537	75239	73229	122061	68423			
GRAND TOTAL - AC	1144	691	158	97	125	92	121	53	71	90	408	128			
\$ per mile (000)	.55	.38	.10	.09	.10	.09	.16	.09	.08	.09	.19	.12			
\$/cct-mi															

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FIGURE 6.35: 17 NODE NETWORK 1995 TRAFFIC, 48f FO CABLE

Traffic Factor Mileage Factor	Route	1995 TRAFFIC, 48f FO CABLE										Total
		11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	
Actual Traffic		527778	389113	194465	264772	520180	683422	609862	111603	904613	527459	
VF Ccts Req'd		703704	518818	259287	353029	693573	911229	813149	148804	1206150	703279	
Initial Fill												
Total VF Circuits		879629	648522	324109	441266	866966	1139036	1016437	186005	1507688	879098	23341723
System Mileage		623.89	681.88	786.34	1802.07	407.05	215.50	256.50	1118.75	364.02	630.83	14026.19
Circuit Miles(000)		548789	442215	254888	706969	352902	245461	260712	208093	533746	554564	12141605
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing												
First Cost (\$000)		17818	19475	22458	45755	11625	12309	7326	31952	20221	18017	500913
48f fiber FO Cable		1205	1317	1519	3095	766	833	496	2161	1368	1219	33885
Cable Installation		9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
F.O. Mtr/Rctr		2646	2016	1008	1386	2520	3276	3024	630	4410	2646	68670
F.O. Line Repeater		6174	4704	2688	6174	4200	3276	3024	2620	5880	6174	132258
1/RM Bldg, Power		1350	1350	1500	2850	1050	750	750	2100	900	1350	29550
M13 Mux		68723	50715	25358	34493	67778	88988	79433	14543	117810	68723	1824113
GRAND TOTAL - FC		107798	90378	66986	120809	94407	112845	98114	71627	156197	108120	2811564
\$ per mile (000)		173	133	85	75	232	524	383	64	441	171	200
\$/cct-mi		.20	.20	.26	.17	.27	.46	.38	.34	.29	.19	.23
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing												
First Cost (\$000)		7184	7851	9054	18447	4687	4963	2953	12882	8153	7264	201950
48f fiber FO Cable		486	531	612	1248	317	336	200	871	551	491	13661
Cable Installation		3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Mtr/Rctr		1660	1265	632	869	1581	2055	1897	395	2766	1660	43073
F.O. Line Repeater		3873	2951	1886	4926	2634	2055	1897	1581	3688	3873	82957
1/RM Bldg, Power		539	539	599	1138	419	300	300	839	360	539	11804
M13 Mux		43105	31810	15905	21835	42513	55816	49823	9122	73895	43105	1144156
GRAND TOTAL - AC		60831	49302	33511	58495	54751	66900	56708	32834	91674	60961	1587174
\$ per mile (000)		96	72	43	37	135	310	229	29	259	97	113
\$/cct-mi		.11	.11	.13	.08	.16	.27	.23	.16	.17	.11	.13
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing												
First Cost (\$000)		17818	19475	22458	45755	11625	6195	7326	31952	10111	18017	400588
48f fiber FO Cable		1205	1317	1519	3095	766	416	496	2161	684	1219	27099
Cable Installation		9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
F.O. Mtr/Rctr		2635	2205	1260	1575	2835	3485	3160	945	4725	2835	73395
F.O. Line Repeater		6615	5145	3360	8925	4725	3360	3150	3780	6300	6615	142695
1/RM Bldg, Power		1350	1350	1500	2850	1050	750	750	2100	900	1350	29550
M13 Mux		68723	50715	25358	34493	67778	88988	79433	14543	117810	68723	1824113
GRAND TOTAL - FC		103428	91008	67910	122069	95247	106652	98366	73202	146137	108750	2719614
\$ per mile (000)		174	133	86	76	234	495	384	65	413	172	194
\$/cct-mi		.20	.21	.27	.17	.27	.43	.38	.35	.27	.20	.22
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing												
First Cost (\$000)		7184	7851	9054	18447	4687	2481	2953	12882	4076	7264	161502
48f fiber FO Cable		486	531	612	1248	317	168	200	871	276	491	10925
Cable Installation		3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Mtr/Rctr		1778	1383	790	988	1778	2173	1976	593	2964	1778	46036
F.O. Line Repeater		4149	3227	2108	5598	2964	2173	1976	2371	3952	4149	89504
1/RM Bldg, Power		539	539	599	1138	419	300	300	839	360	539	11804
M13 Mux		43105	31810	15905	21835	42513	55816	49823	9122	73895	43105	1144156
GRAND TOTAL - AC		61226	49697	34091	59285	55278	64488	58866	33822	87783	61326	1553500
\$ per mile (000)		96	73	43	37	136	299	248	30	248	97	111
\$/cct-mi		.11	.11	.13	.08	.16	.26	.23	.16	.16	.11	.13

EXHIBIT 6.35A: 17 NODE NETWORK (1995)

1.7 Gbps DIGITAL FO SYSTEM

100 mi Repeater Spacing

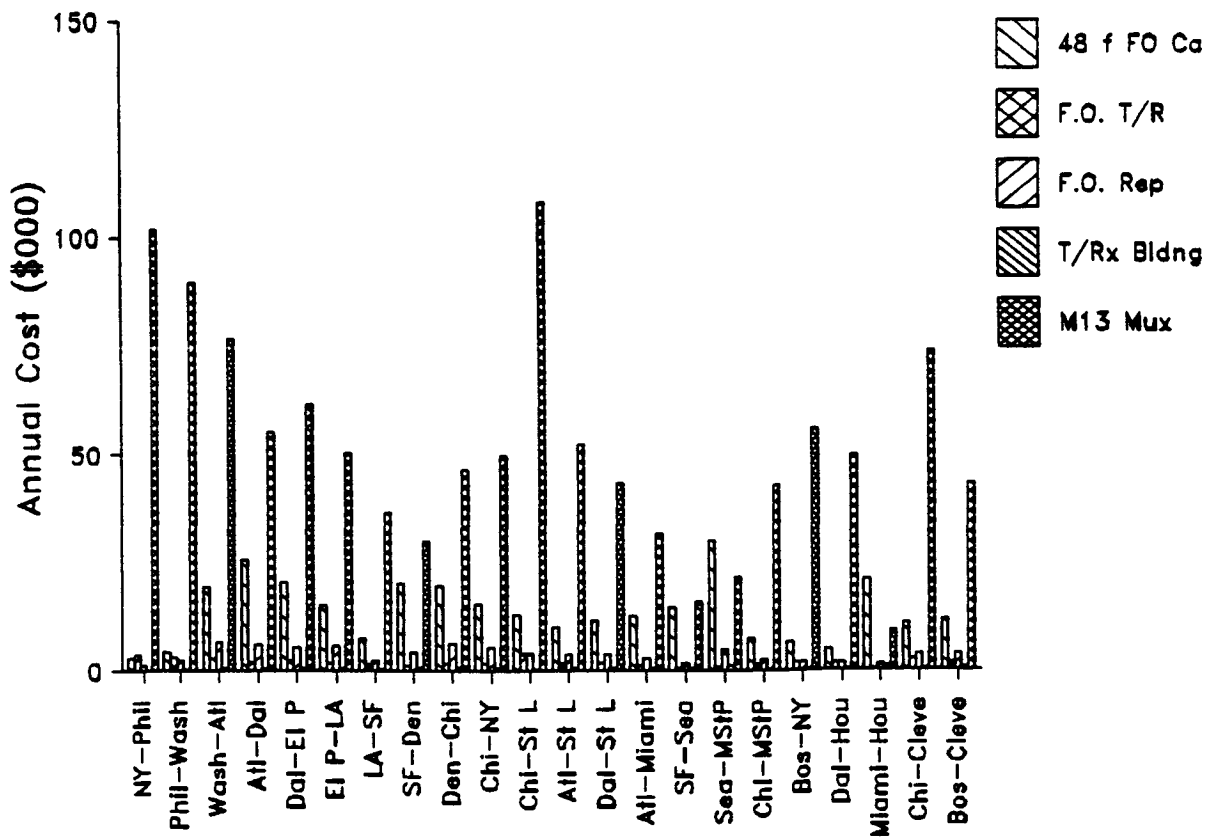
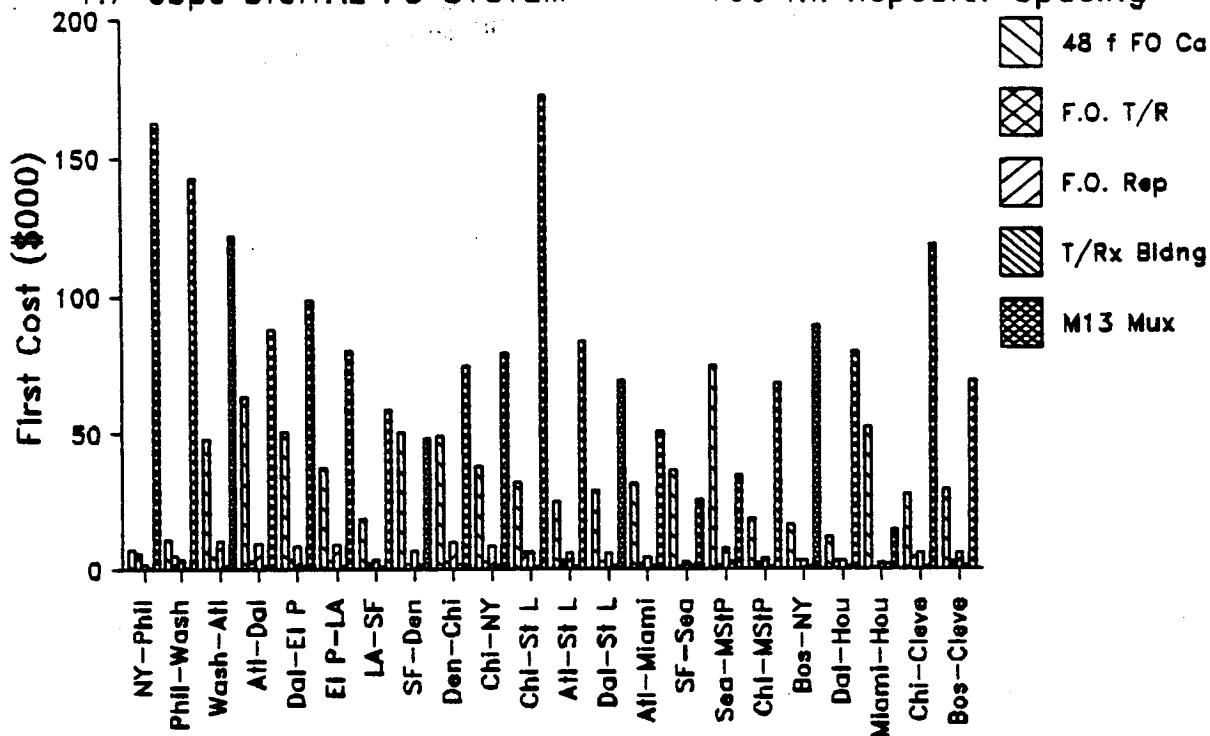


EXHIBIT 6.35B: 17 NODE NETWORK (1995)

4.05 Gbps DIGITAL FO SYSTEM

100 mi Repeater Spacing

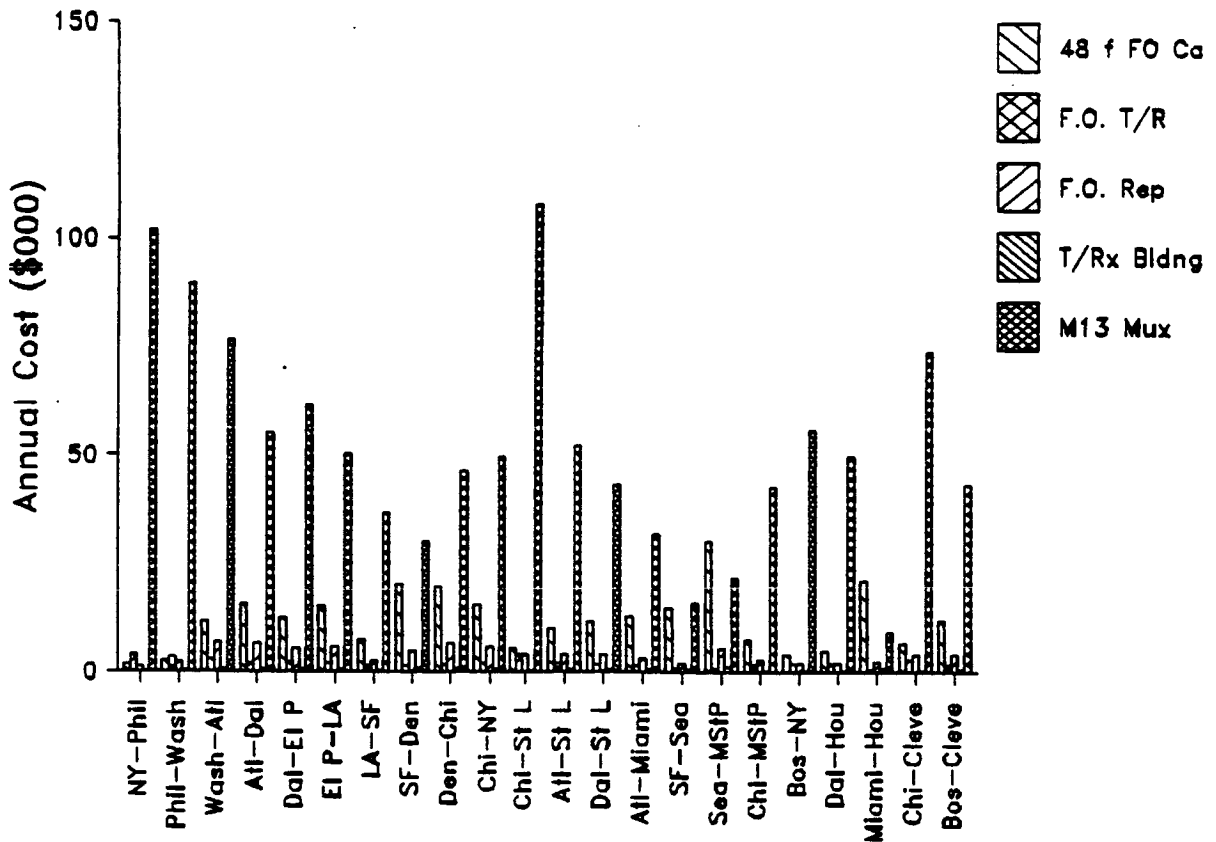
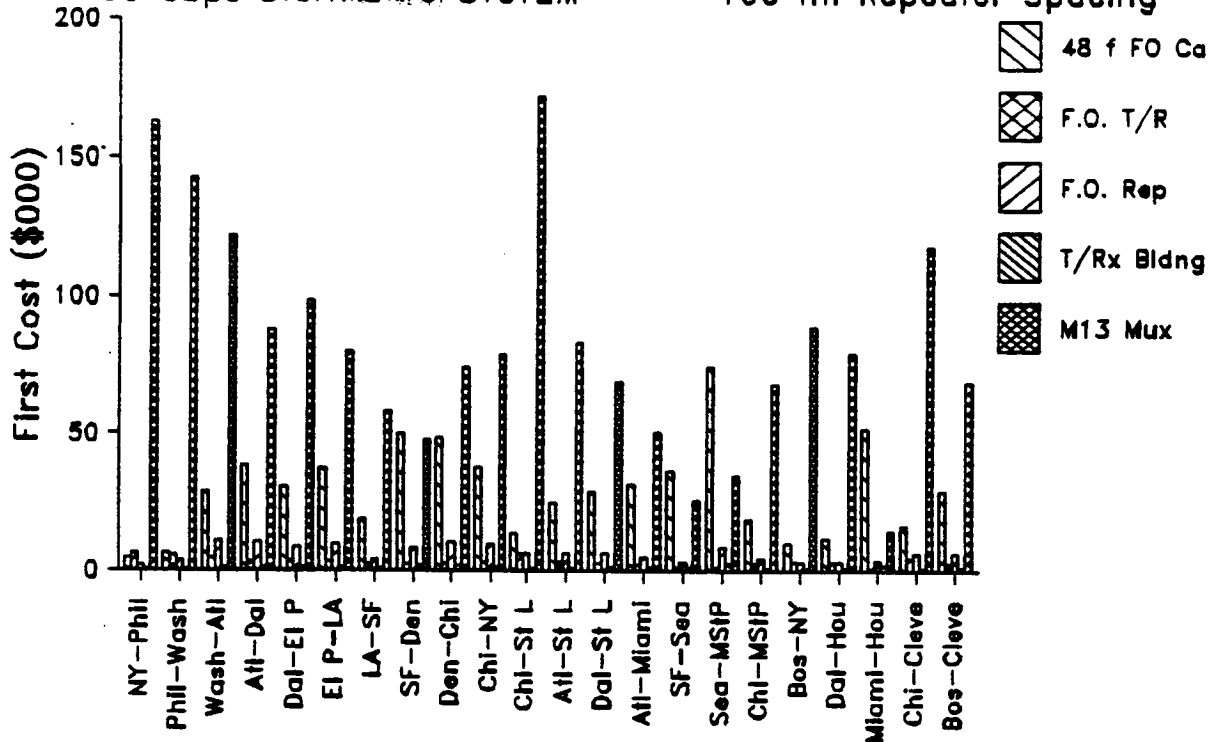


FIGURE 6.36: 17 NODE NETWORK 1995 TRAFFIC, 96f FO CABLE

Traffic Factor		17 NODE NETWORK										
Mileage Factor		1995 TRAFFIC, 96f FO CABLE										
Route		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4
Actual Traffic	1.955	1248514	1095772	935665	675000	755771	616046	447033	367305	568856	1320493	636750
UF Ccts Req'd	1.15	1664685	1461029	1247853	899999	1007694	821395	596044	489740	758475	1760657	849000
Initial Fill												
Total VF Circuits		2080857	1826286	1589442	1124999	1259618	1026744	745055	612175	948053	2200822	1061250
System Mileage		95.51	142.38	625.76	827.24	657.55	808.45	402.85	1087.00	1054.49	298.92	534.66
Circuit Miles(000)		198737	260029	971157	930645	828258	830071	300142	665436	999757	657869	567406
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing												
First Cost (\$000)		5162	7695	33659	44711	35539	43695	21773	58750	56993	32312	26897
96 fiber FO Cable		346	516	2256	2996	2382	2928	1459	3937	3819	2165	1937
96f Ca Splicing		1513	2255	9865	13103	10416	12806	6381	17218	16703	4735	6469
Cable Installation		6048	5292	4536	3276	3780	3024	2268	1890	2772	6300	3024
F.O. Mtr/Rcvr		2016	3528	10584	9828	8820	9072	3780	6930	10164	8694	6048
F.O. Line Repeater		450	600	1350	1650	1350	1650	1050	1950	1950	750	1200
T/RM Bldg, Power		142695	142695	121853	87938	98438	80230	58233	47828	74078	78750	82950
M13 Num		178127	162581	184102	163502	160724	153395	94934	138503	166479	162092	132525
GRAND TOTAL - FC		1865	1142	296	198	244	190	236	127	158	751	248
\$ per mile (000)		.90	.63	.19	.18	.19	.18	.32	.21	.17	.34	.23
\$/cct-mi												
Annual Cost (\$000)		2081	3103	13570	18026	14328	17616	8778	23686	22978	13027	11650
96 fiber FO Cable		139	208	909	1208	960	1181	588	1587	1540	873	781
96f Ca Splicing		610	909	3977	5283	4199	5163	2573	6942	6734	1909	3414
Cable Installation		3794	3319	2845	2055	2371	1837	1423	1185	1739	3952	1897
F.O. Mtr/Rcvr		1265	2213	6639	6165	5532	5690	2371	4347	6375	3952	3794
F.O. Line Repeater		180	240	539	659	539	659	419	779	779	300	479
T/RM Bldg, Power		101984	89504	76431	55158	61744	50317	36519	29999	46464	107879	52030
M13 Num		110053	99496	104910	88553	89674	82523	52671	68626	86609	131891	74045
GRAND TOTAL - AC		1152	699	168	107	136	102	131	82	82	441	138
\$ per mile (000)		.55	.38	.11	.10	.11	.10	.18	.10	.09	.20	.13
\$/cct-mi												
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing												
First Cost (\$000)		5162	7695	33659	44711	35539	43695	21773	58750	56993	16156	26897
96 fiber FO Cable		346	516	2256	2996	2382	2928	1459	3937	3819	1083	1937
96f Ca Splicing		1513	2255	9865	13103	10416	12806	6381	17218	16703	4735	6469
Cable Installation		6300	5670	4725	3465	3780	3150	2520	2205	2835	6615	3150
F.O. Mtr/Rcvr		2100	3780	11026	10395	8820	9450	4200	6085	10395	6615	6300
F.O. Line Repeater		450	600	1350	1650	1350	1650	1050	1950	1950	750	1200
T/RM Bldg, Power		142695	142695	121853	87938	98438	80230	58233	47828	74078	78750	82950
M13 Num		162581	163211	184732	164258	160724	153899	95606	139973	166773	153100	132903
GRAND TOTAL - FC		1869	1146	297	199	244	190	237	129	158	696	249
\$ per mile (000)		.90	.63	.19	.18	.19	.19	.32	.21	.17	.32	.23
\$/cct-mi												
Annual Cost (\$000)		2081	3103	13570	18026	14328	17616	8778	23686	22978	16156	11650
96 fiber FO Cable		139	208	909	1208	960	1181	588	1587	1540	873	781
96f Ca Splicing		610	909	3977	5283	4199	5163	2573	6942	6734	1909	3414
Cable Installation		3794	3319	2845	2055	2371	1837	1423	1185	1739	3952	1897
F.O. Mtr/Rcvr		1265	2213	6639	6165	5532	5690	2371	4347	6375	3952	3794
F.O. Line Repeater		180	240	539	659	539	659	419	779	779	300	479
T/RM Bldg, Power		101984	89504	76431	55158	61744	50317	36519	29999	46464	107879	52030
M13 Num		110264	99891	105305	89027	89674	82523	53053	69448	86793	125336	74282
GRAND TOTAL - AC		1155	702	169	108	136	102	132	82	82	419	139
\$ per mile (000)		.55	.38	.11	.10	.11	.10	.18	.10	.09	.20	.13
\$/cct-mi												

FIGURE 6.36: 17 NODE NETWORK 1995 TRAFFIC, 96 F0 CABLE

Traffic Factor Mileage Factor	Route										Total
	11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	
Actual Traffic	527778	389113	194465	264772	520180	683422	609862	111603	904613	527459	
VF Ccts Req'd	703704	518818	259287	353029	695573	911229	813149	148804	1206150	703279	
Initial Fill											
Total VF Circuits	879629	648522	324109	441286	866966	1139036	1016437	186005	1507688	879098	23341723
System Mileage	623.89	681.88	786.34	1602.07	407.05	215.50	256.50	1118.75	354.02	630.83	14026.19
Circuit Miles (000)	548789	442215	254888	706969	352902	245451	260712	208093	533746	554564	12141605

1.7 Gbps DIGITAL F0 SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)	33720	36854	42500	66588	22000	11647	13863	60466	19134	34095	774244
96 fiber F0 Cable	2260	2470	2848	5803	1474	781	929	4052	1282	2285	51886
96f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	2646	2016	1008	1386	2520	3276	3024	630	4410	2646	68670
F.O. Intr/Rcvr	6174	4704	2688	7854	4200	3276	3024	2520	5880	6174	132258
F.O. Line Repeater	1350	1350	1500	2850	1050	750	750	2100	900	1350	29550
T/Rh Bldng, Power	68723	50715	25356	34493	67778	88988	79433	14543	117810	68723	1824113
M3 Mux	124754	108910	86357	164350	105470	112131	105086	102032	155024	125265	3102895
GRAND TOTAL - FC	200	160	112	103	259	520	410	91	438	199	221
\$ per mile (000)	.23	.25	.35	.23	.30	.46	.40	.49	.29	.23	.26
\$/cct-mi											

4.05 Gbps DIGITAL F0 SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)	33720	36854	42500	66588	22000	11647	13863	60466	19134	34095	758088
96 fiber F0 Cable	2260	2470	2848	5803	1474	781	929	4052	1282	2285	50803
96f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	2646	2016	1008	1386	2520	3276	3024	630	4410	2646	68670
F.O. Intr/Rcvr	6174	4704	2688	7854	4200	3276	3024	2520	5880	6174	132258
F.O. Line Repeater	1350	1350	1500	2850	1050	750	750	2100	900	1350	29550
T/Rh Bldng, Power	68723	50715	25356	34493	67778	88988	79433	14543	117810	68723	1824113
M3 Mux	125384	109540	89281	165610	106310	112509	105338	103607	155759	125895	3100818
GRAND TOTAL - FC	201	161	114	103	261	522	411	93	440	200	221
\$ per mile (000)	.23	.25	.35	.23	.30	.46	.40	.50	.29	.23	.26
\$/cct-mi											

Annual Cost (\$000)											
96 fiber F0 Cable	13595	14858	17134	34909	8870	4696	5589	24378	7714	13746	312147
96f Ca Splicing	911	996	1148	2339	594	315	375	1634	517	921	20918
Cable Installation	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Intr/Rcvr	1660	1265	632	869	1581	2055	1897	395	2766	1660	43073
F.O. Line Repeater	3873	2951	1686	4926	2634	2055	1897	1581	3688	3873	82957
T/Rh Bldng, Power	539	539	599	1138	419	300	300	839	360	539	11804
M3 Mux	43105	31810	15905	21635	42513	55816	49623	9122	73895	43105	1144156
GRAND TOTAL - RC	67667	56773	42127	76049	59211	66612	61518	45092	91201	67873	1704627
\$ per mile (000)	108	83	54	47	145	309	240	40	258	108	122
\$/cct-mi	.12	.13	.17	.11	.17	.27	.24	.22	.17	.12	.14

Annual Cost (\$000)											
96 fiber F0 Cable	13595	14858	17134	34909	8870	4696	5589	24378	7714	13746	305633
96f Ca Splicing	911	996	1148	2339	594	315	375	1634	517	921	20482
Cable Installation	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Intr/Rcvr	1778	1383	790	988	1778	2173	1976	593	2964	1778	46036
F.O. Line Repeater	4149	3227	2108	5598	2964	2173	1976	2371	3952	4149	89504
T/Rh Bldng, Power	539	539	599	1138	419	300	300	839	360	539	11804
M3 Mux	43105	31810	15905	21635	42513	55816	49623	9122	73895	43105	1144156
GRAND TOTAL - RC	68062	57169	42707	76839	59738	66849	61676	46080	91662	68268	1707188
\$ per mile (000)	109	84	54	45	147	310	240	41	259	108	122
\$/cct-mi	.12	.13	.17	.11	.17	.27	.24	.22	.17	.12	.14

EXHIBIT 6.36A: 17 NODE NETWORK (1995)

1.7 Gbps DIGITAL FO SYSTEM

100 mi Repeater Spacing

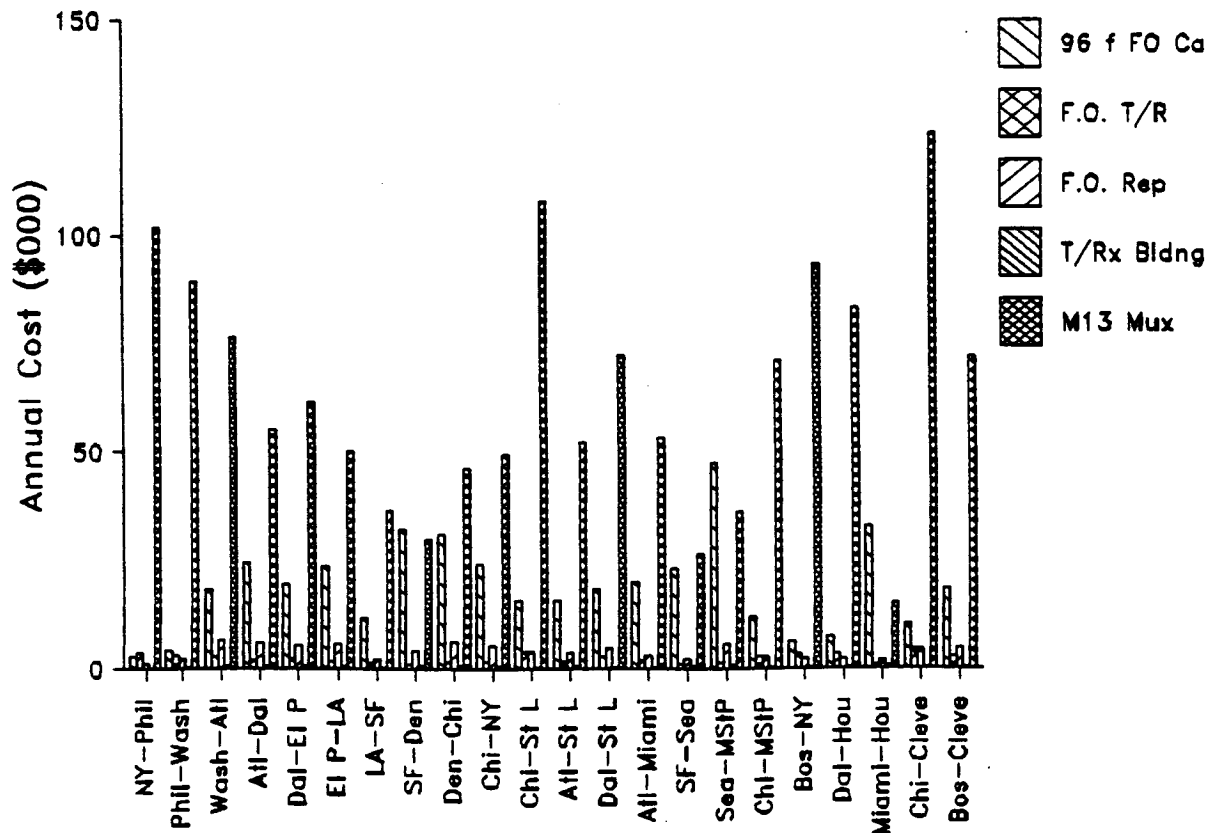
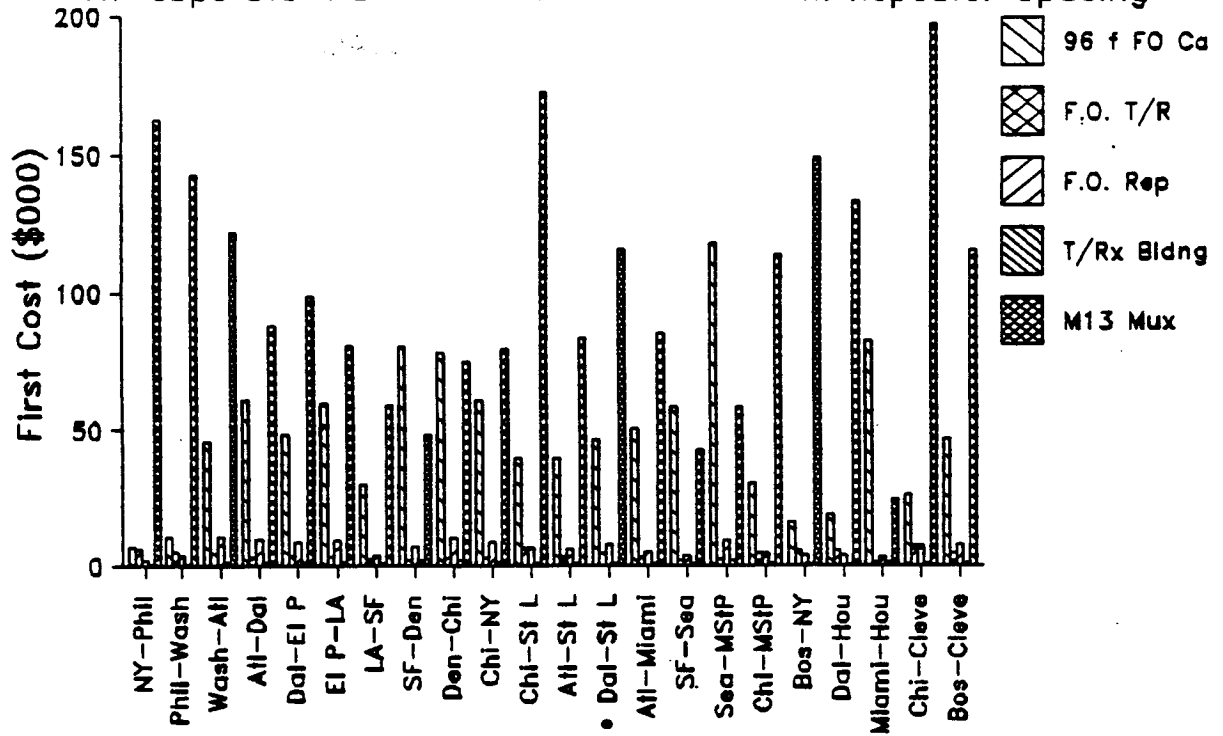
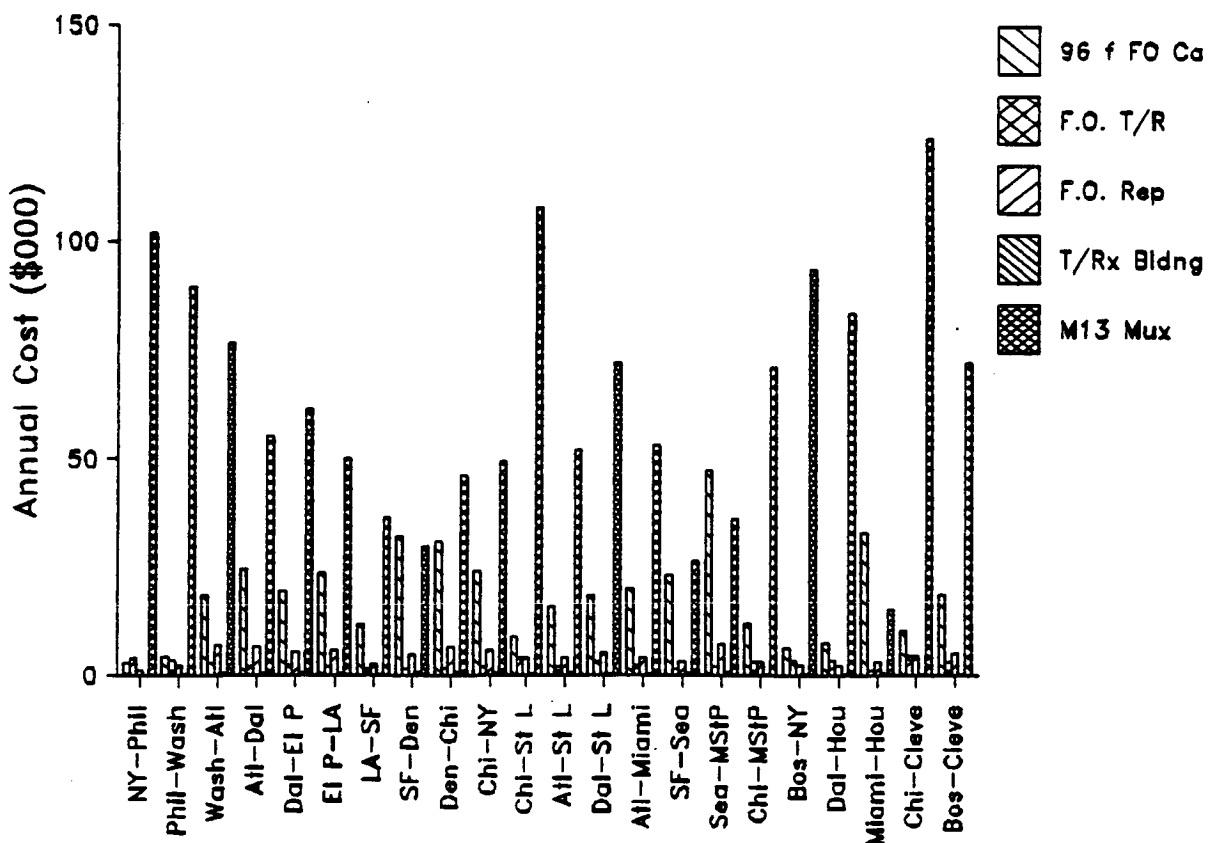
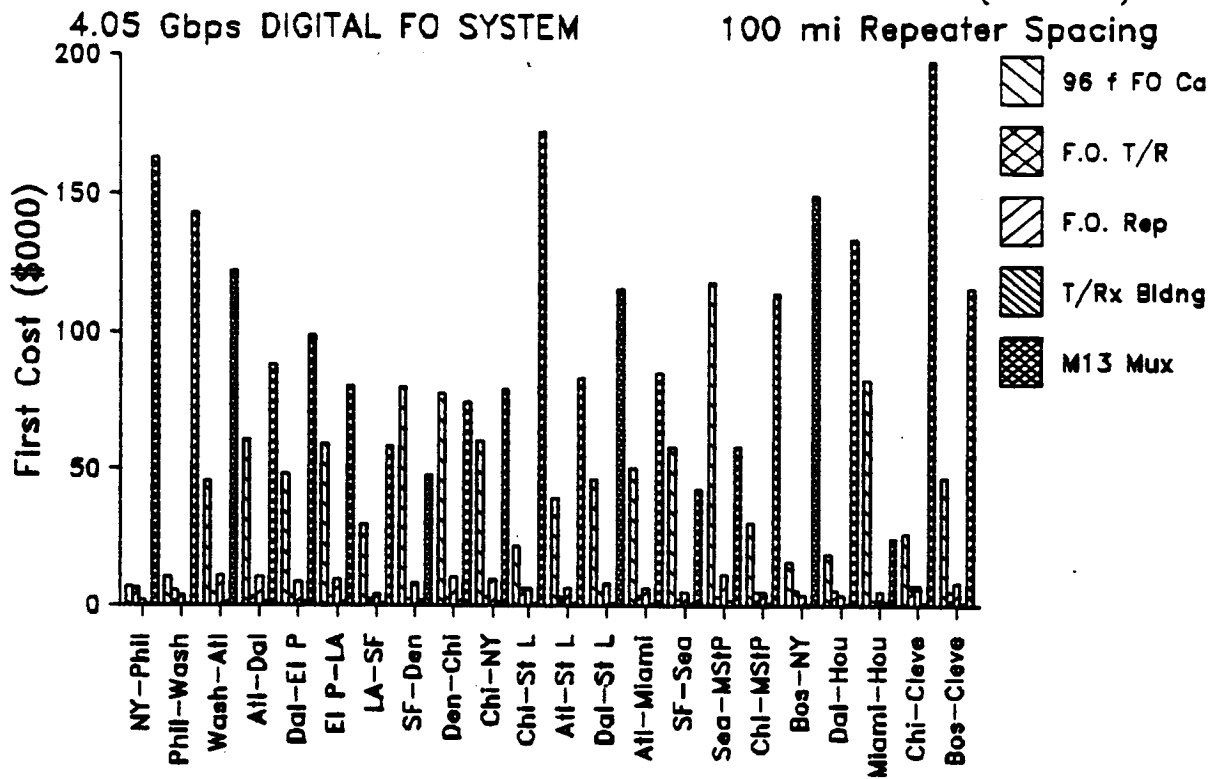


EXHIBIT 6.36B: 17 NODE NETWORK (1995)



1.3 M 1995 TRAFFIC. 48F FO CABLE:

FIGURE 6. 32. 12 NOISE METROLOGY

Traffic Factor Mileage Factor	2-5415 1.15	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4
Route												
Actual Traffic	1623068	1424803	1216364	877499	982502	800860	581143	477497	739513	785933	1716641	827775
WF Ccts Req	2164091	1899338	1621819	1169999	1310003	1067814	774857	636662	986017	1047911	2289855	1103700
Initial Fill	2705114	2374172	2027274	1462499	1637503	1334767	948572	795828	1232521	1309888	2861066	1379625
Total WF Circuits	95.51	142.38	622.76	827.24	657.55	808.45	482.85	1087.00	1054.49	817.57	298.92	534.66
System Mileage	258359	338038	1262804	1209639	1076735	1079092	390184	865067	1299684	1070925	855329	737627
Circuit Miles(000)												
100 mi Repeater Spacing												
First Cost (\$000)	8183	12199	35572	47252	37559	46179	11505	31045	60233	46700	25611	30540
48 fiber FO Cable	825	825	2406	3196	2541	3124	778	2100	4075	3159	1733	2066
48f Ca Splicing	554	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735	8469
Cable Installation	1513	6930	5796	4284	4662	3906	2898	2394	3654	3906	8190	4032
F.O. Ntr/Rcvr	7686	4620	13524	12852	10878	11718	4830	8778	13398	1718	8190	8064
F.O. Line Repeater	2562	600	1350	1350	1350	1650	1050	1950	1950	1650	750	1200
T/Rx Bldg, Power	450	211358	158393	114293	127943	104318	75705	62213	96338	102375	223545	107835
M13 Num	232312	212912	226905	196630	195348	183700	103148	125698	196350	182458	272754	162206
GRAND TOTAL - FC	2432	1495	364	238	297	227	256	116	186	223	912	303
\$ per mile (000)	.90	.63	.18	.16	.18	.17	.26	.15	.15	.17	.32	.22
\$/cct-mi												
Annual Cost (\$000)	3299	4918	14341	19050	15142	18618	4638	12516	24284	18828	10326	12312
48 fiber FO Cable	223	333	970	1289	1024	1259	314	847	1643	1274	698	833
48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909	3414
Cable Installation	4821	4347	3635	2687	2924	2450	1818	1502	2292	2450	5137	2529
F.O. Ntr/Rcvr	1607	2898	6483	8061	6823	7350	3030	5506	8404	7350	5137	5058
F.O. Line Repeater	180	240	539	539	539	659	419	779	779	659	300	479
T/Rx Bldg, Power	132577	116342	99350	71689	80251	65432	47485	39022	60427	64214	140216	67638
M13 Num	143316	129987	131296	108718	110903	100931	60277	67113	104562	99995	163723	92265
GRAND TOTAL - AC	1801	913	211	131	169	125	150	62	99	122	548	173
\$ per mile (000)	.55	.38	.10	.09	.10	.09	.15	.08	.08	.09	.19	.13
\$/cct-mi												
4.4.05 Gbps DIGITAL FO SYSTEM												
First Cost (\$000)	5485	4066	17786	23626	18780	23089	11505	31045	30116	23350	17074	15270
48 fiber FO Cable	359	275	1203	1598	1270	1562	778	2100	2037	1560	1155	1033
48f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735	8469
Cable Installation	7878	6930	5985	4725	5040	4095	3150	2520	3780	3760	8190	4095
F.O. Ntr/Rcvr	2635	4620	13965	14175	11760	12285	5250	9240	13860	11340	8190	6190
F.O. Line Repeater	450	600	1350	1650	1350	1650	1050	1950	1950	1650	750	1200
T/Rx Bldg, Power	450	211358	158393	114293	127943	104318	75705	62213	96338	102375	223545	107835
M13 Num	211358	185483	158393	114293	127943	104318	75705	62213	96338	102375	223545	107835
GRAND TOTAL - FC	229652	204229	208546	173170	176558	159805	103820	126286	164784	157025	263639	146092
\$ per mile (000)	2405	1434	335	209	269	198	258	116	156	192	882	273
\$/cct-mi	.69	.60	.17	.14	.16	.15	.27	.15	.13	.15	.31	.20
Annual Cost (\$000)	2199	1639	7171	9525	7571	9309	4638	12516	12142	9414	6884	6196
48 fiber FO Cable	149	111	485	644	512	630	314	847	821	637	466	416
48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909	3414
Cable Installation	4940	4347	3754	2964	3161	2569	1976	1581	2371	2371	5137	2669
F.O. Ntr/Rcvr	1647	2898	8759	8891	7376	7706	3293	5796	8694	7113	5137	5137
F.O. Line Repeater	180	240	539	539	539	659	419	779	779	659	300	479
T/Rx Bldg, Power	132577	116342	99350	71689	80251	65432	47485	39022	60427	64214	140216	67638
M13 Num	142300	126486	124036	99655	103610	91467	60698	67482	91967	89628	160048	85810
GRAND TOTAL - AC	1490	888	199	120	158	113	151	62	87	110	535	160
\$ per mile (000)	.55	.37	.10	.08	.10	.08	.16	.08	.07	.08	.19	.11
\$/cct-mi												

FIGURE 6.37: 17 NODE NETWORK 1.3 M 1995 TRAFFIC, 48F FO CABLE

Traffic Factor Mileage Factor	2.5415 1.15	Route										Total	
		11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15		
Actual Traffic	686111	505847	252805	344203	676234	688448	792821	145084	1175997	685697	914262		
OF Ccts Req'd	914815	674463	337073	458938	901645	1184598	1057094	193445	1567995	685697	914262		
Initial Fill	1143518	843079	421341	573672	1127056	1400747	1321368	241806	1959994	1142828	30344241		
Total OF Circuits	623.89	681.88	786.34	1602.07	407.05	215.50	256.50	1118.75	364.02	630.83	14026.19		
System Mileage	713426	574879	331316	919060	458773	319099	336926	270521	693869	720933	15784086		
Circuit Miles (000)													
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing													
First Cost (\$000)	35636	19475	22458	45755	23251	12309	14651	31952	20221	36033	654318		
48 fiber FO Cable	2411	1317	1519	3095	1573	833	991	2161	1368	2438	44263		
48F Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17221	5608	9952	222175		
Cable Installation	3276	2520	1260	1638	3276	4284	3906	756	5670	3276	68200		
F.O. Ntr/Rcvr	7644	5880	3360	9282	5460	4284	3906	3024	7660	7644	169176		
F.O. Line Repeater	1350	1350	1500	2850	1050	750	750	2100	900	1350	29550		
T/Rn Bldg, Power	89355	65888	32918	44835	88095	115710	103268	18900	153143	89303	2371215		
M13 Mun	149554	107230	75470	132832	129153	141583	131535	76614	194469	150036	3578897		
GRAND TOTAL - FC	240	157	96	83	317	657	513	68	549	238	285		
\$ per mile (000)	.21	.19	.23	.14	.28	.44	.39	.28	.28	.21	.23		
\$/cct-mi													
Annual Cost (\$000)	14367	7851	9054	18447	9374	4963	5907	12882	8153	14527	263797		
48 fiber FO Cable	972	531	612	1248	634	336	400	871	551	983	17845		
48F Ca Splicing	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573		
Cable Installation	2055	1581	790	1027	2055	2687	2450	474	3556	2055	55323		
F.O. Ntr/Rcvr	4795	3688	2108	5822	3425	2687	2450	1897	4742	4795	106114		
F.O. Line Repeater	539	539	599	1138	419	300	300	839	360	539	11804		
T/Rn Bldg, Power	56047	41327	20647	28122	95257	72578	64773	11855	96057	56014	1487320		
M13 Mun	82759	59872	36832	66036	73763	84926	77917	35962	115680	82941	2031776		
GRAND TOTAL - RC	133	88	49	41	161	394	304	32	327	131	145		
\$ per mile (000)	.12	.10	.12	.07	.16	.27	.23	.13	.17	.12	.13		
\$/cct-mi													
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing													
First Cost (\$000)	17818	19475	22458	45755	11625	6155	7326	31952	10111	18017	411853		
48 fiber FO Cable	1205	1317	1519	3095	766	416	496	2161	684	1219	27861		
48F Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17221	5608	9952	222175		
Cable Installation	3485	2520	1260	1638	3485	4725	3780	945	5985	3485	91980		
F.O. Ntr/Rcvr	8085	5880	4200	10710	5775	4725	3780	3780	7980	8085	178500		
F.O. Line Repeater	1350	1350	1500	2850	1050	750	750	2100	900	1350	29550		
T/Rn Bldg, Power	89355	65888	32918	44835	88095	115710	103268	18900	153143	89303	2371215		
M13 Mun	131161	107230	76625	134512	117245	135894	123461	77559	184410	131430	3333133		
GRAND TOTAL - FC	210	157	97	84	288	631	481	69	521	208	238		
\$ per mile (000)	.18	.19	.23	.15	.26	.43	.36	.29	.27	.18	.21		
\$/cct-mi													
Annual Cost (\$000)	7184	7851	9054	18447	4687	2481	2953	12882	4076	7264	166044		
48 fiber FO Cable	486	531	612	1248	317	168	200	491	276	491	11232		
48F Ca Splicing	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573		
Cable Installation	2173	1581	798	1185	2173	2964	2371	593	3754	2173	57694		
F.O. Ntr/Rcvr	5071	3688	2634	6718	3622	2964	2371	2371	5005	5071	111962		
F.O. Line Repeater	539	539	599	1138	419	300	300	839	360	539	11804		
T/Rn Bldg, Power	56047	41327	20647	28122	95257	72578	64773	11855	96057	56014	1487320		
M13 Mun	75485	59872	36857	67090	89075	82830	74606	36553	111789	75562	1935629		
GRAND TOTAL - RC	121	88	50	42	170	384	291	33	316	120	136		
\$ per mile (000)	.11	.10	.12	.07	.15	.26	.22	.14	.16	.10	.12		
\$/cct-mi													

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EXHIBIT 6.37A: 17 NODE NETWORK (1995+30%)

1.7 Gbps DIGITAL FO SYSTEM

100 mi Repeater Spacing

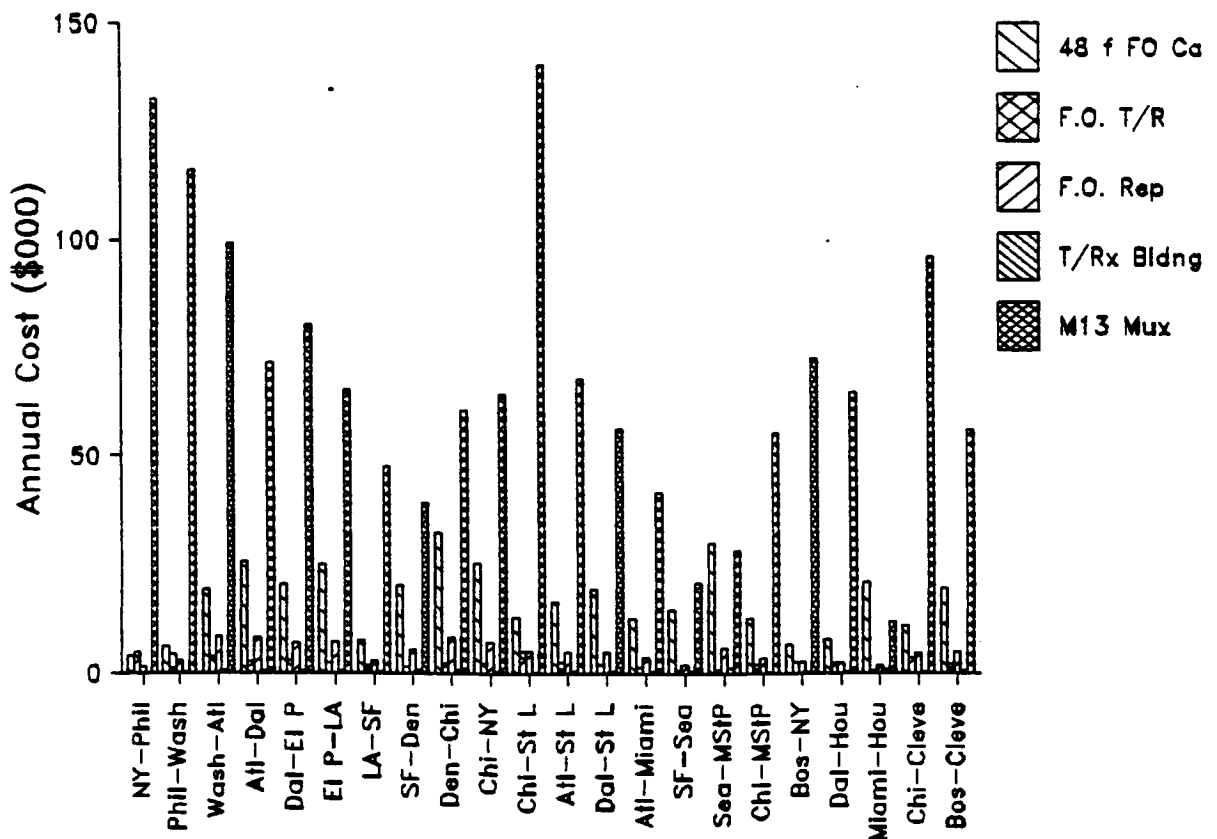
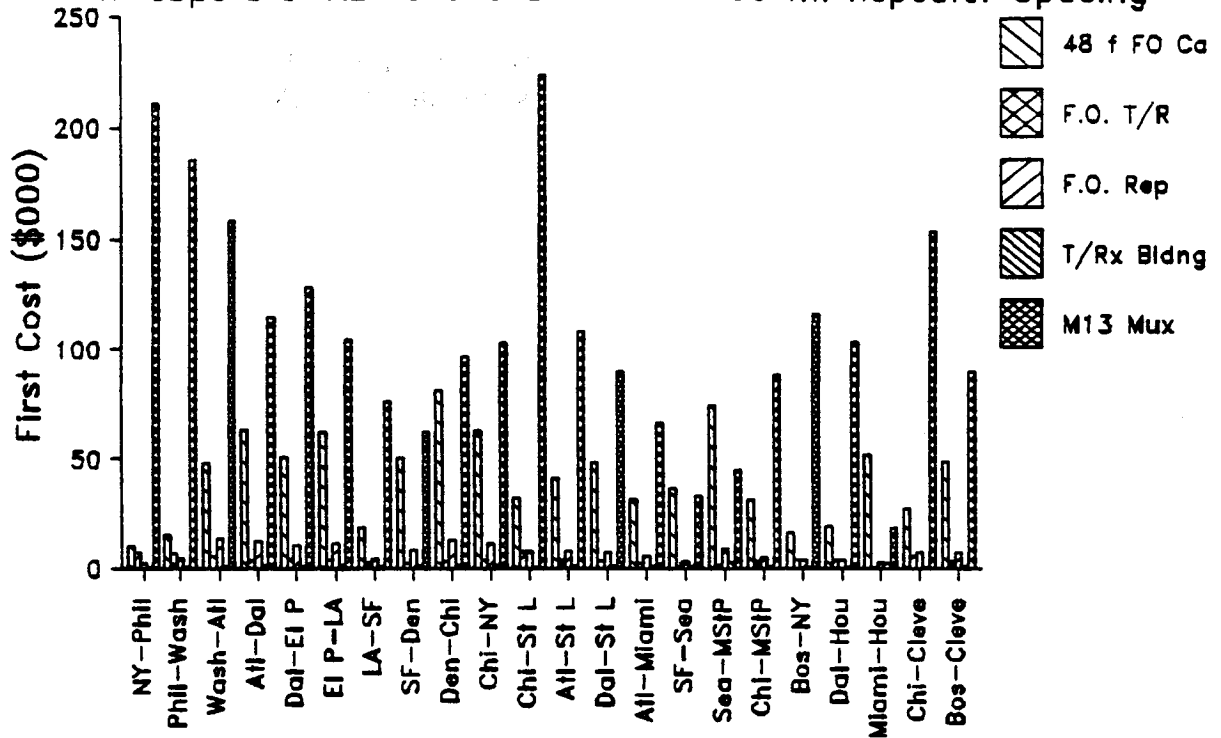


EXHIBIT 6.37B: 17 NODE NETWORK (1995+30%)

4.05 Gbps DIGITAL FO SYSTEM

100 mi Repeater Spacing

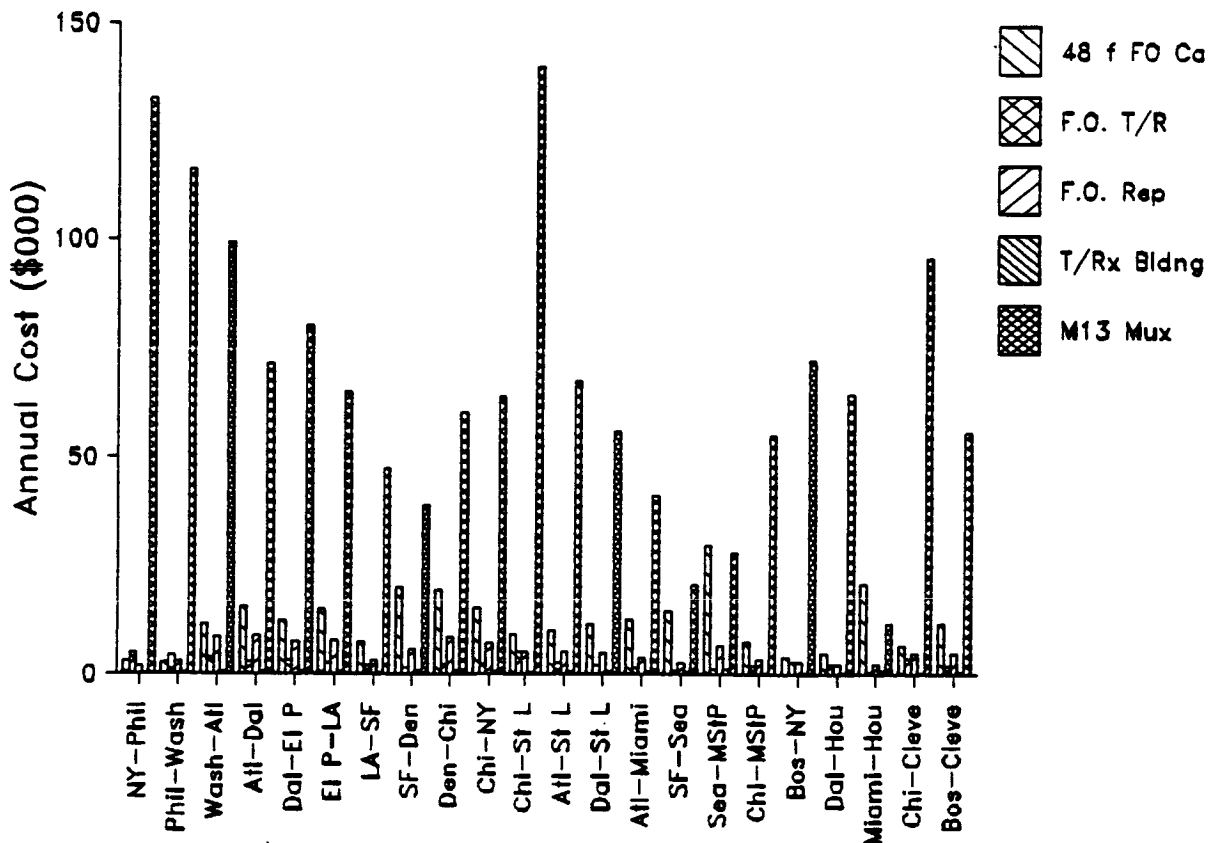
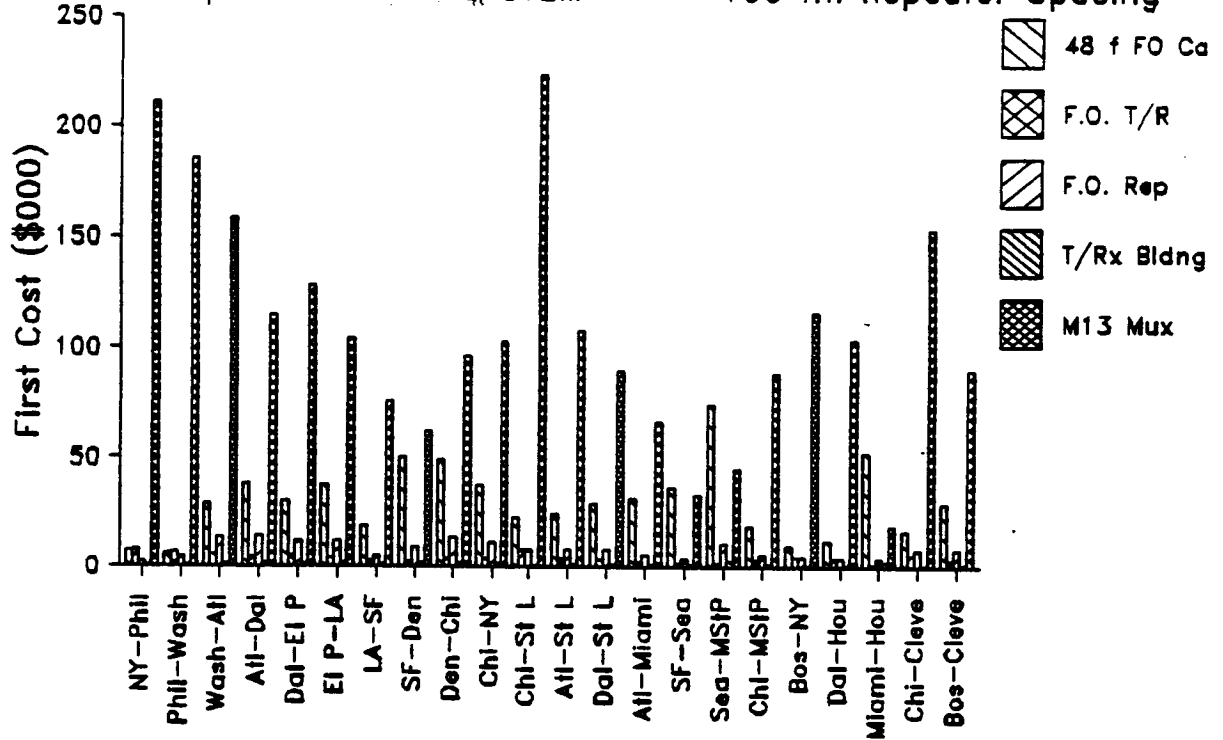


FIGURE 6.38: 1.3 M 1995 TRAFFIC, 96F FO CABLE

17 NODE NETWORK

Traffic Factor 2.5415
Mileage Factor 1.15

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4
Actual Traffic	1623068	1424503	1216364	877499	982502	800860	581143	477497	739513	785933	827775
WF Ccts Req'd	2164091	1899338	1621819	1169999	1310003	1067814	774957	636662	986017	1047911	1103700
Initial Fill	2705114	2374172	2032274	1462499	1637503	1334767	968572	795828	1232521	1309888	1379625
Total WF Circuits	95.51	142.36	622.76	827.24	657.55	808.45	402.85	1087.00	1054.49	817.57	298.92
System Mileage	298359	338038	1262504	1209839	1076735	1079092	390184	865067	1299684	1070925	855229
Circuit Miles(0000)											

1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$0000)	10324	15391	33659	44711	35539	43695	21773	58750	56993	44188	32312
96 fiber FO Cable	692	1031	2256	2996	2382	2928	1459	3937	3819	2961	2165
96F Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735
Cable Installation	7686	6930	5796	4284	4662	3906	2898	2394	3654	3906	8190
F.O. Rctr/Rcvr	2562	4620	13524	12852	10878	11718	4930	8778	13398	11718	8190
F.O. Line Repeater	450	600	1350	1650	1350	1650	1050	1950	1950	1650	750
T/Rm Bldg, Power	211365	185483	158393	114293	127943	104318	75705	62213	96338	102375	223545
M13 Mux	234592	216310	224842	193689	193169	181021	114096	155240	192855	179749	279887
GRAND TOTAL - FC	2456	1519	361	234	294	224	283	143	183	220	936
\$ per mile (0000)											
\$/cct-mi	.91	.64	.18	.16	.18	.17	.29	.18	.15	.17	.33

Annual Cost (\$0000)	4162	6205	13570	18026	14328	17616	8778	23686	22978	17815	13027
96 fiber FO Cable	279	416	909	1208	960	1181	588	1587	1540	1194	873
96F Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	3414
Cable Installation	4821	4347	3635	2687	2924	2450	1818	1502	2292	2450	1909
F.O. Rctr/Rcvr	1607	2898	8483	8061	6823	7350	3030	5506	8404	7350	5137
F.O. Line Repeater	180	240	539	659	539	659	419	779	779	659	300
T/Rm Bldg, Power	132577	116342	99350	71689	80251	65432	47485	39022	60427	64214	140216
M13 Mux	144235	131356	130464	107613	110025	99851	64691	79024	103153	98903	166599
GRAND TOTAL - AC	1510	923	209	130	167	124	161	73	98	121	557
\$ per mile (0000)											
\$/cct-mi	.56	.39	.10	.09	.10	.09	.17	.09	.08	.19	.12

4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$0000)	5162	7695	33659	44711	35539	43695	21773	58750	56993	44188	16156
96 fiber FO Cable	346	516	2256	2996	2382	2928	1459	3937	3819	2961	1083
96F Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735
Cable Installation	7876	6930	5985	4725	5040	4095	3150	2520	3780	3780	8190
F.O. Rctr/Rcvr	2625	4620	13965	14175	11760	12285	5250	9240	13860	11340	8190
F.O. Line Repeater	450	600	1350	1650	1350	1650	1050	1950	1950	1650	750
T/Rm Bldg, Power	211365	185483	158393	114293	127943	104318	75705	62213	96338	102375	223545
M13 Mux	229336	208099	225472	195653	194429	181777	114768	155828	193443	179245	262649
GRAND TOTAL - FC	2401	1462	362	237	296	225	285	143	183	219	879
\$ per mile (0000)											
\$/cct-mi	.89	.62	.18	.16	.18	.17	.29	.18	.15	.17	.31

Annual Cost (\$0000)	2081	3103	13570	18026	14328	17616	8778	23686	22978	17815	6514
96 fiber FO Cable	139	208	909	1208	960	1181	588	1587	1540	1194	436
96F Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909
Cable Installation	4940	4347	3754	2964	3161	2569	1976	1581	2371	2371	5137
F.O. Rctr/Rcvr	1647	2898	8759	8691	7376	7706	3293	5796	8694	7113	5137
F.O. Line Repeater	180	240	539	659	539	659	419	779	779	659	300
T/Rm Bldg, Power	132577	116342	99350	71689	80251	65432	47485	39022	60427	64214	140216
M13 Mux	142173	138046	130859	103719	110815	100325	65112	79392	103522	98887	159649
GRAND TOTAL - AC	1489	899	210	131	169	124	162	73	98	121	534
\$ per mile (0000)											
\$/cct-mi	.55	.38	.10	.09	.10	.09	.17	.09	.08	.19	.12

1.3 M 1995 TRAFFIC, 96F FO CABLE

17 NODE NETWORK

FIGURE 6.38:

Traffic Factor 2.5415
 Mileage Factor 1.15

Route	11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	Total
Actual Traffic	686111	505847	252805	344203	676234	888448	792821	145084	1175997	685697	
VF Ccts Req'd	914815	674463	337073	458938	901645	1184598	1057094	193445	1567995	914262	
Initial Fill											
Total VF Circuits	1143518	843079	421341	573672	1127056	1480747	1321368	241806	1959994	1142828	30344241
System Mileage	623.89	681.88	786.34	1602.07	407.05	216.50	256.80	1118.75	384.02	630.63	14026.19
Circuit Miles(000)	713426	574879	331316	919060	458773	319099	338926	270521	693869	720933	15784086

1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$000)											
96 fiber FO Cable	33720	36854	42500	86588	22000	11647	13863	60466	19134	34095	787101
96F Ca Splicing	2260	2470	2848	5803	1474	781	929	4052	1282	2285	52747
Cable Installation	9882	10901	12456	25377	6448	3413	4063	17721	5608	9992	222175
F.O. Rmtr/Rcor	3276	2520	1260	1638	3276	4284	3906	756	5670	3276	88200
F.O. Line Repeater	7644	5880	3360	9282	5460	4284	3906	3024	7560	7644	169176
T/Rm Bldg, Power	1350	1350	1500	2850	1050	780	780	2100	900	1350	29550
M13 Rm	89355	65888	32918	44835	88095	115710	103268	18900	153143	89303	2371215
GRAND TOTAL - FC	147487	125763	96841	176373	127804	140869	130685	107020	193296	147945	3720164
\$ per mile (000)	236	184	123	110	314	654	509	96	546	235	265
\$/cct-mi	.21	.22	.29	.19	.28	.44	.39	.40	.28	.21	.24

Annual Cost (\$000)											
96 fiber FO Cable	13595	14858	17134	34909	8870	4696	5589	24378	7714	13746	317330
96F Ca Splicing	911	996	1148	2339	594	315	375	1634	517	921	21266
Cable Installation	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Rmtr/Rcor	2055	1581	790	1027	2055	2687	2450	474	3866	2055	55323
F.O. Line Repeater	4795	3688	2108	5822	3425	2687	2450	1897	4742	4795	106114
T/Rm Bldg, Power	539	539	599	1138	419	300	300	839	360	539	11804
M13 Rm	56047	41327	20647	28122	55257	72578	64773	11855	96057	56014	1487320
GRAND TOTAL - AC	81926	67344	47448	83590	73219	84638	77575	48221	115207	82098	2088729
\$ per mile (000)	131	99	60	52	180	393	302	43	325	130	149
\$/cct-mi	.11	.12	.14	.09	.16	.27	.23	.18	.17	.11	.13

4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$000)											
96 fiber FO Cable	33720	36854	42500	86588	22000	11647	13863	60466	19134	34095	758088
96F Ca Splicing	2260	2470	2848	5803	1474	781	929	4052	1282	2285	50803
Cable Installation	9882	10901	12456	25377	6448	3413	4063	17721	5608	9992	222175
F.O. Rmtr/Rcor	3465	2520	1575	1890	3465	4725	3780	945	5985	3465	91980
F.O. Line Repeater	8085	5880	4200	10710	5775	4725	3780	3780	7980	8085	178500
T/Rm Bldg, Power	1350	1350	1500	2850	1050	750	750	2100	900	1350	29550
M13 Rm	89355	65888	32918	44835	88095	115710	103268	18900	153143	89303	2371215
GRAND TOTAL - FC	149117	125763	97996	178053	128308	141751	130433	107965	194031	148575	3702310
\$ per mile (000)	237	184	125	111	315	658	509	97	548	236	264
\$/cct-mi	.21	.22	.30	.19	.28	.44	.38	.40	.28	.21	.23

Annual Cost (\$000)											
96 fiber FO Cable	13595	14858	17134	34909	8870	4696	5589	24378	7714	13746	306633
96F Ca Splicing	911	996	1148	2339	594	315	375	1634	517	921	20482
Cable Installation	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Rmtr/Rcor	2173	1581	988	1185	2173	2964	2371	593	3754	2173	57694
F.O. Line Repeater	5071	3688	2634	6718	3622	2964	2371	2371	5005	5071	111962
T/Rm Bldg, Power	539	539	599	1138	419	300	300	839	360	539	11804
M13 Rm	56047	41327	20647	28122	55257	72578	64773	11855	96057	56014	1487320
GRAND TOTAL - AC	82321	67344	48173	84644	73535	85192	77417	48813	115668	82494	2084468
\$ per mile (000)	132	99	61	53	181	395	302	44	327	131	149
\$/cct-mi	.12	.12	.15	.09	.16	.27	.23	.18	.17	.11	.13

EXHIBIT 6.38A: 17 NODE NETWORK (1995+30%)

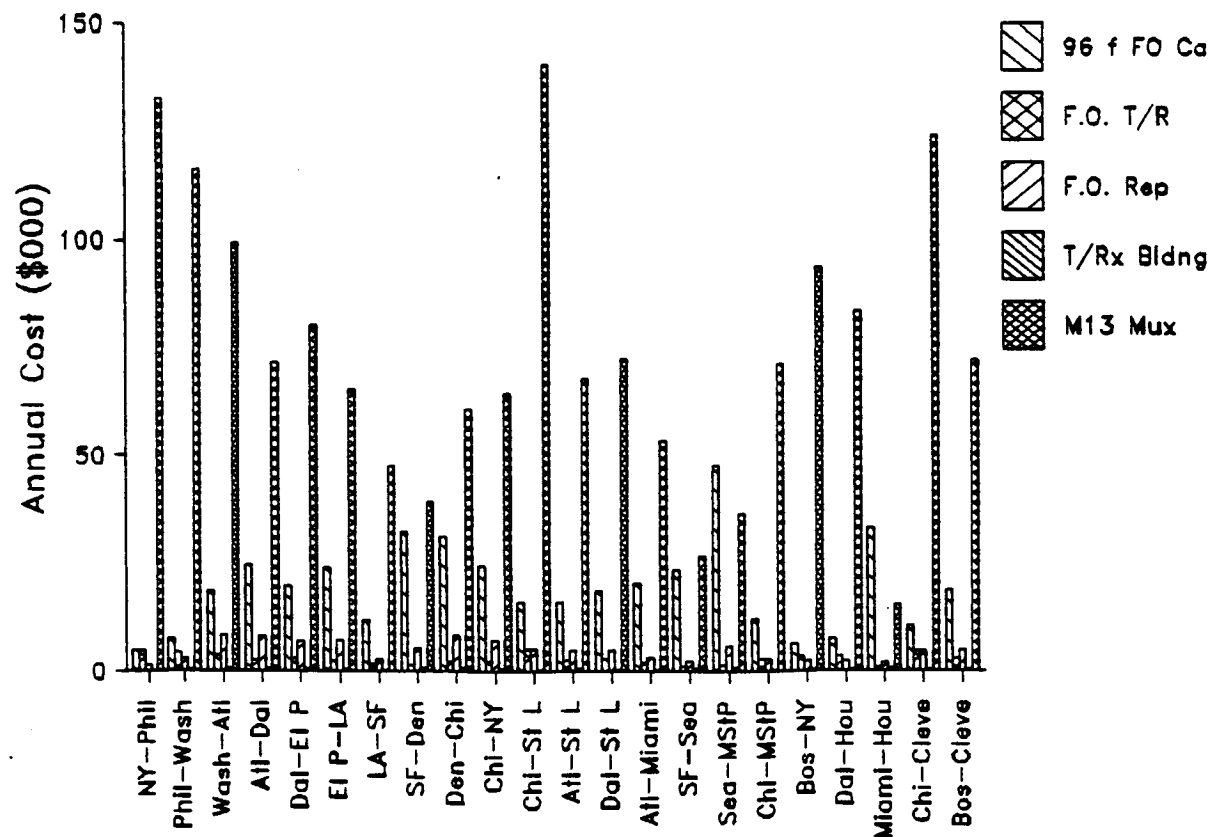
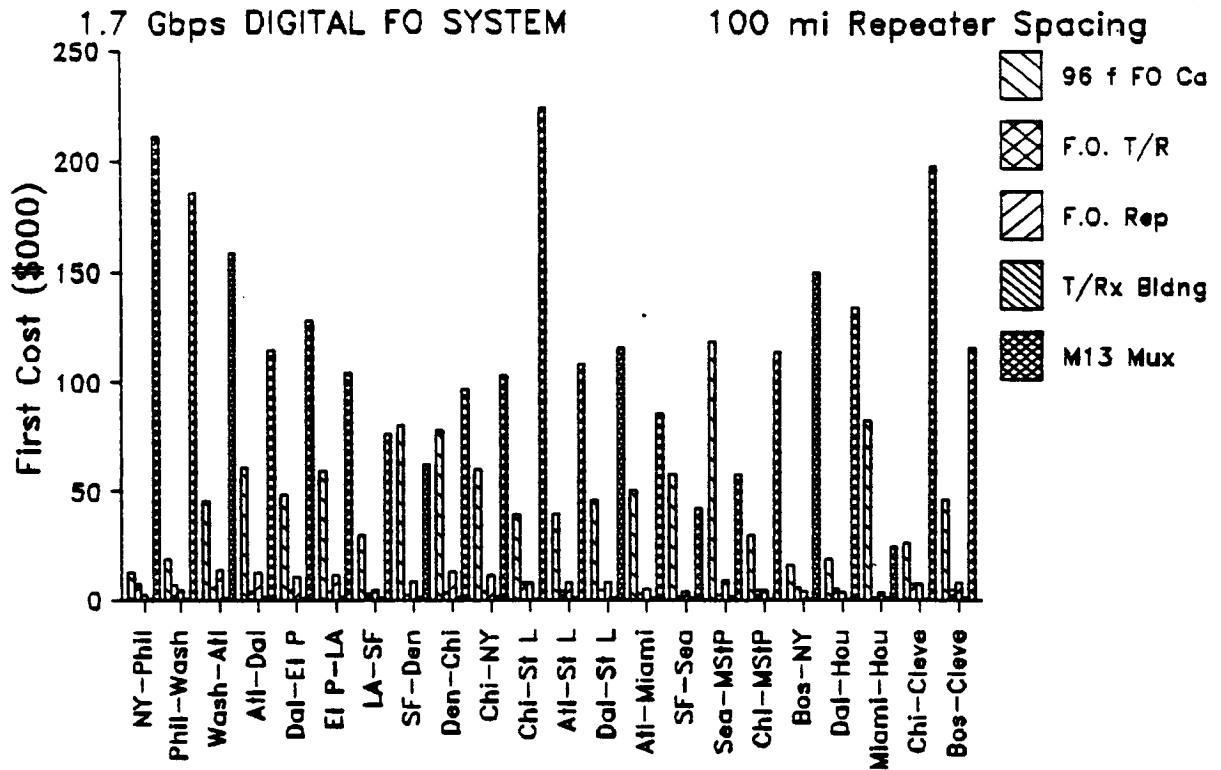


EXHIBIT 6.38B: 17 NODE NETWORK (1995+30%)

4.05 Gbps DIGITAL FO SYSTEM

100 mi Repeater Spacing

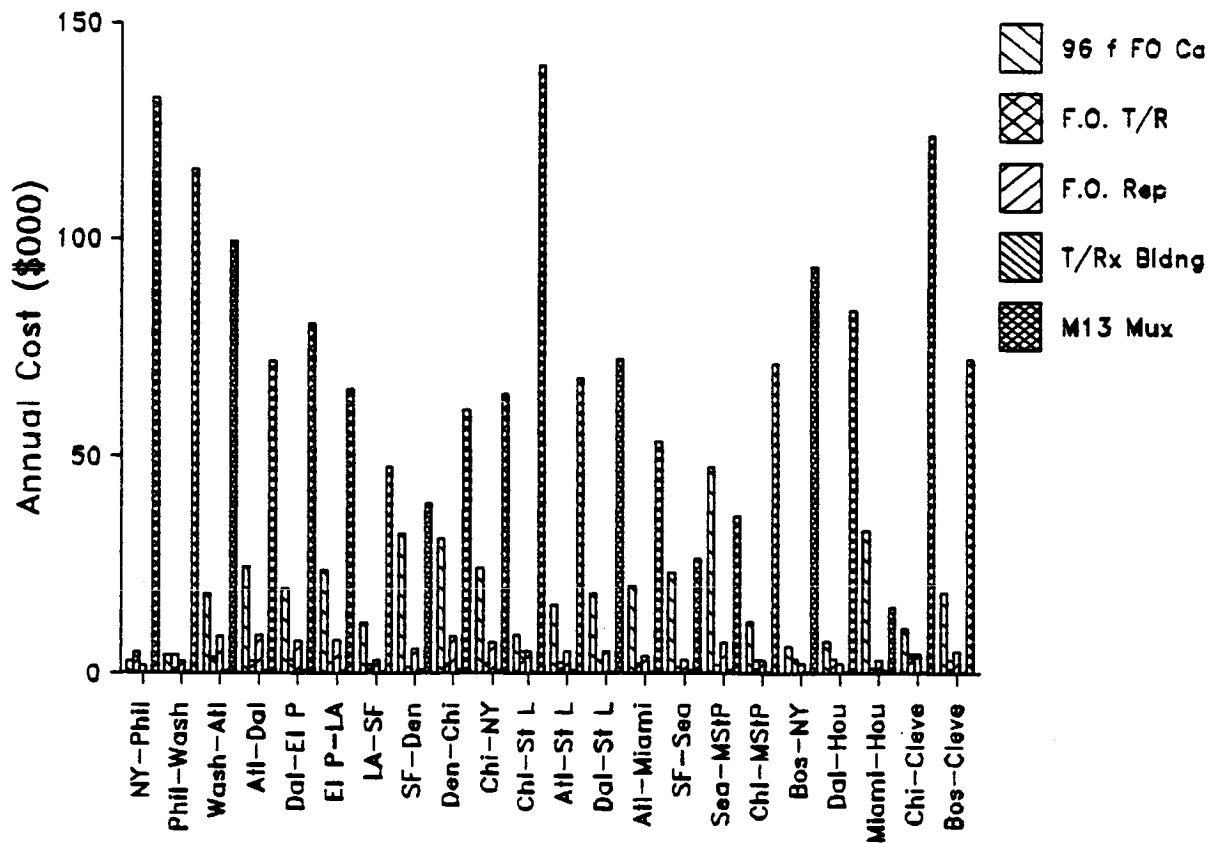
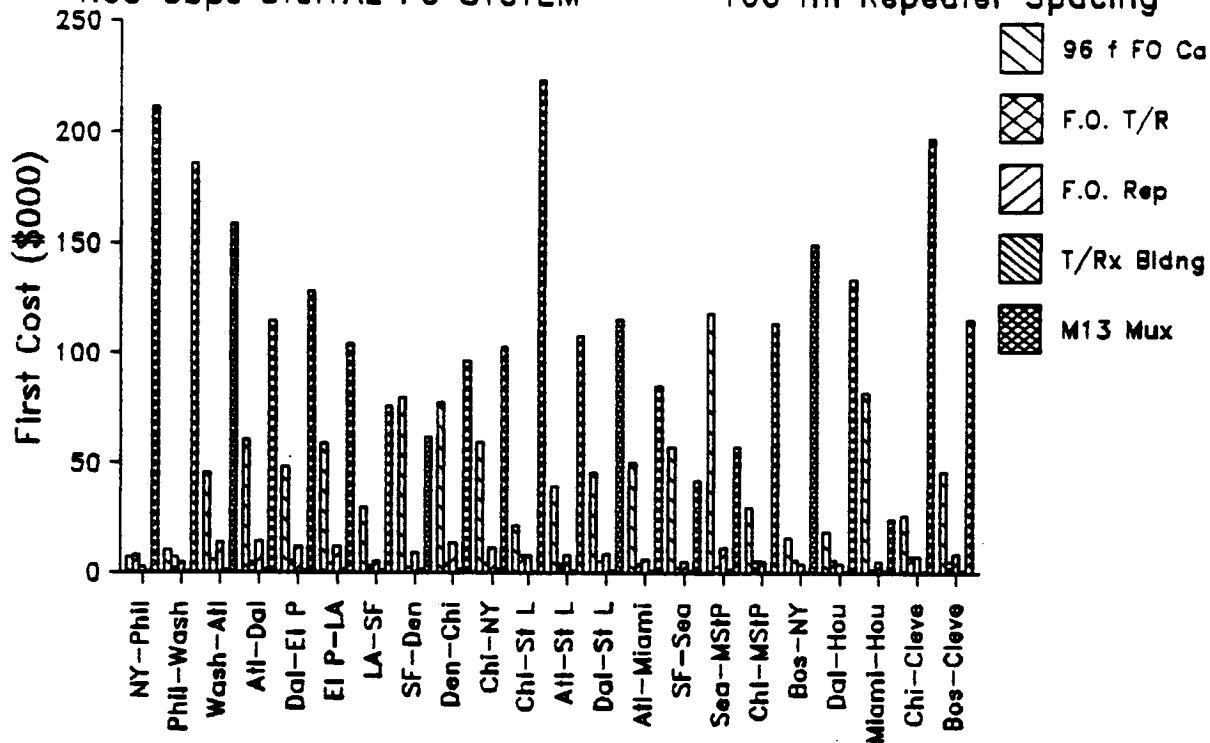


FIGURE 6.39: 17 NODE NETWORK .7 M 1995 TRAFFIC, 48F FO CABLE

Traffic Factor Mileage Factor	Route										
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
Actual Traffic	873960	767040	654965	472500	529040	431232	312923	257114	398199	423195	924345
UF Ccts Req'd	1165280	1022720	873287	630000	705386	574977	417231	342818	530932	564260	1232460
Initial Fill	-8	1278400	1091609	787499	891733	718721	521539	428523	663665	705324	1540575
Total VF Circuits	1456600	14238	622376	82724	85785	80845	40285	108700	105449	81787	29592
System Mileage	139116	182021	679810	651452	579761	581050	210099	465805	699830	876552	460508
Circuit Miles(000)											
1.7 Gbps DIGITAL FO SYSTEM	100 mi Repeater Spacing										
First Cost (\$000)	5455	8133	35572	23626	18780	23089	11505	31045	30116	23350	17074
48 fiber FO Cable	369	550	2406	1598	1270	1562	778	2100	2037	1580	1155
48f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735
Cable Installation	4284	3780	3160	2394	2646	2142	1812	1260	2016	2142	4410
F.O. Rtr/Rcvr	1428	2520	7350	7182	6174	6426	2520	7392	7392	6426	4410
F.O. Line Repeater	450	600	1350	1650	1350	1650	1050	1950	1950	1650	750
T/RM Bldg, Power	113820	99908	85313	61530	68933	56175	40793	33495	51870	55125	120383
M13 Rm	127319	117746	145005	111084	109568	103850	64539	91688	112085	103223	152917
GRAND TOTAL - FC	1333	827	233	134	167	128	160	84	106	126	512
\$ per mile (000)	.92	.65	.21	.17	.19	.18	.31	.20	.16	.18	.33
\$/cct-mi											
Annual Cost (\$000)	2199	3379	14341	9525	7571	9309	4638	12516	12142	9414	6884
48 fiber FO Cable	149	222	970	644	512	630	314	847	821	637	416
48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909
Cable Installation	2687	2371	1976	1502	1660	1344	948	790	1265	1344	2766
F.O. Rtr/Rcvr	896	1581	4610	4505	3873	4031	1581	2898	4637	4031	2766
F.O. Line Repeater	180	240	539	659	539	659	419	779	779	659	300
T/RM Bldg, Power	71392	62666	53511	38594	43237	35235	25587	21009	32535	34577	75509
M13 Rm	78113	71267	79923	60712	61591	56370	36060	45781	58912	55882	90599
GRAND TOTAL - AC	818	501	128	73	94	70	90	42	56	68	303
\$ per mile (000)	.56	.39	.12	.09	.11	.10	.17	.10	.08	.10	.20
\$/cct-mi											
4.05 Gbps DIGITAL FO SYSTEM	100 mi Repeater Spacing										
First Cost (\$000)	2728	4066	17796	23626	18780	23089	11505	31045	30116	23350	15370
48 fiber FO Cable	185	275	1203	1598	1270	1562	778	2100	2037	1580	1033
48f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735
Cable Installation	4284	3780	3160	2394	2646	2142	1812	1260	2016	2142	4410
F.O. Rtr/Rcvr	1570	2520	8085	7560	6615	6615	3150	5775	8085	6615	4725
F.O. Line Repeater	450	600	1350	1650	1350	1650	1050	1950	1950	1650	750
T/RM Bldg, Power	113820	99908	85313	61530	68933	56175	40793	33495	51870	55125	120383
M13 Rm	124995	113404	127066	111588	110198	104102	65547	93158	112967	103475	144432
GRAND TOTAL - FC	1309	796	204	135	168	129	163	86	107	127	483
\$ per mile (000)	.90	.62	.19	.17	.19	.18	.31	.20	.16	.18	.31
\$/cct-mi											
Annual Cost (\$000)	1100	1639	7171	9525	7571	9309	4638	12516	12142	9414	6156
48 fiber FO Cable	74	111	485	644	512	630	314	847	821	637	416
48f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909
Cable Installation	2964	2371	1976	1502	1660	1344	948	790	1265	1344	2766
F.O. Rtr/Rcvr	988	1581	4610	4505	3873	4031	1581	2898	4637	4031	2766
F.O. Line Repeater	180	240	539	659	539	659	419	779	779	659	300
T/RM Bldg, Power	71392	62666	53511	38594	43237	35235	25587	21009	32535	34577	75509
M13 Rm	77308	69517	72928	61028	61986	56528	36692	46703	59465	56040	87319
GRAND TOTAL - AC	809	488	117	74	94	70	91	43	56	69	292
\$ per mile (000)	.56	.38	.11	.09	.11	.10	.17	.10	.08	.10	.19
\$/cct-mi											

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FIGURE 6.39: 17 NODE NETWORK .7 M 1995 TRAFFIC, 48f FO CABLE

Traffic Factor Mileage Factor	11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	Total
Actual Traffic	369444	272379	136126	185340	364126	478395	426903	78122	633229	369221	
VF Ccts Req'd	492892	363172	181501	247120	485501	637860	569205	104163	844306	492295	
Initial Fill											
Total VF Circuits	615741	453965	226876	308900	606876	797326	711506	130203	1055381	615369	16339206
System Mileage	623.89	661.88	786.34	1602.07	407.05	215.60	256.50	1116.75	354.02	630.63	14026.19
Circuit Miles (000)	384152	309550	178401	494878	247031	171822	182498	145665	373622	388195	8499123

1.7 Gbps DIGITAL FO SYSTEM	100 mi Repeater Spacing										
First Cost (\$000)											
48 fiber FO Cable	17818	19475	22458	45755	11625	6155	7326	31952	10111	18017	433705
48f Ca Splicing	1205	1317	1519	3095	766	416	496	2161	684	1219	29339
Cable Installation	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
F.O. Mtr/Rcvr	1890	1386	756	1008	1890	2394	2142	504	3024	1890	48888
F.O. Line Repeater	4410	3234	2016	5712	3150	2394	2142	2016	4032	4410	94500
1/R4 Bldng, Power	1350	1350	1500	2850	1050	750	750	2100	900	1350	29550
M13 Run	48143	35490	17745	24150	47460	62318	55596	10185	82478	48090	1277063
GRAND TOTAL - FC	84698	73053	58449	107947	72410	77840	72615	66639	106836	84928	2135220
\$ per mile (000)	136	107	74	67	178	361	283	60	302	136	152
\$/cct-mi	.22	.24	.33	.22	.29	.45	.40	.46	.29	.22	.25

4.05 Gbps DIGITAL FO SYSTEM	100 mi Repeater Spacing										
First Cost (\$000)											
48 fiber FO Cable	7184	7851	9054	18447	4687	2481	2953	12882	4076	7264	174854
48f Ca Splicing	486	531	612	1248	317	168	200	871	276	491	11828
Cable Installation	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Mtr/Rcvr	1185	869	474	632	1185	1502	1344	316	1897	1185	30664
F.O. Line Repeater	2766	2028	1265	3563	1976	1502	1344	1265	2529	2766	59274
1/R4 Bldng, Power	539	539	599	1138	419	300	300	839	360	539	11804
M13 Run	30197	22261	11130	15148	29769	39088	34873	6388	51733	30164	801024
GRAND TOTAL - RC	46342	38435	28157	50427	40953	46416	42651	29706	63131	46438	1179022
\$ per mile (000)	74	56	36	31	101	215	166	27	178	74	84
\$/cct-mi	.12	.12	.16	.10	.17	.27	.23	.20	.17	.12	.14

4.05 Gbps DIGITAL FO SYSTEM	100 mi Repeater Spacing										
First Cost (\$000)											
48 fiber FO Cable	17818	19475	22458	45755	11625	6155	7326	31952	10111	18017	400588
48f Ca Splicing	1205	1317	1519	3095	766	416	496	2161	684	1219	27099
Cable Installation	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
F.O. Mtr/Rcvr	2205	1575	945	1260	2205	2520	2205	945	3150	2205	53965
F.O. Line Repeater	5145	3675	2520	7140	3675	2520	2205	3780	4200	5145	106365
1/R4 Bldng, Power	1350	1350	1500	2850	1050	750	750	2100	900	1350	29550
M13 Run	48143	35490	17745	24150	47460	62318	55596	10185	82478	48090	1277063
GRAND TOTAL - FC	85748	73683	59142	109627	73250	78092	72641	68844	107130	86018	2116704
\$ per mile (000)	137	108	75	68	180	362	283	62	303	136	151
\$/cct-mi	.22	.24	.33	.22	.30	.45	.40	.47	.29	.22	.25

4.05 Gbps DIGITAL FO SYSTEM	100 mi Repeater Spacing										
First Cost (\$000)											
48 fiber FO Cable	7184	7851	9054	18447	4687	2481	2953	12882	4076	7264	161502
48f Ca Splicing	486	531	612	1248	317	168	200	871	276	491	10925
Cable Installation	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Mtr/Rcvr	1185	869	474	632	1185	1502	1344	316	1897	1185	33786
F.O. Line Repeater	3227	2305	1581	4478	1383	1581	1383	593	1976	1383	66716
1/R4 Bldng, Power	539	539	599	1136	419	300	300	839	360	539	11804
M13 Run	30197	22261	11130	15148	29769	39088	34873	6388	51733	30164	801024
GRAND TOTAL - RC	47000	38830	28531	51481	41480	46574	42730	31089	63316	47097	1175331
\$ per mile (000)	75	57	36	32	102	216	167	28	179	75	84
\$/cct-mi	.12	.13	.16	.10	.17	.27	.23	.21	.17	.12	.14

EXHIBIT 6.39A: 17 NODE NETWORK (1995-30%)

1.7 Gbps DIGITAL FO SYSTEM

100 mi Repeater Spacing

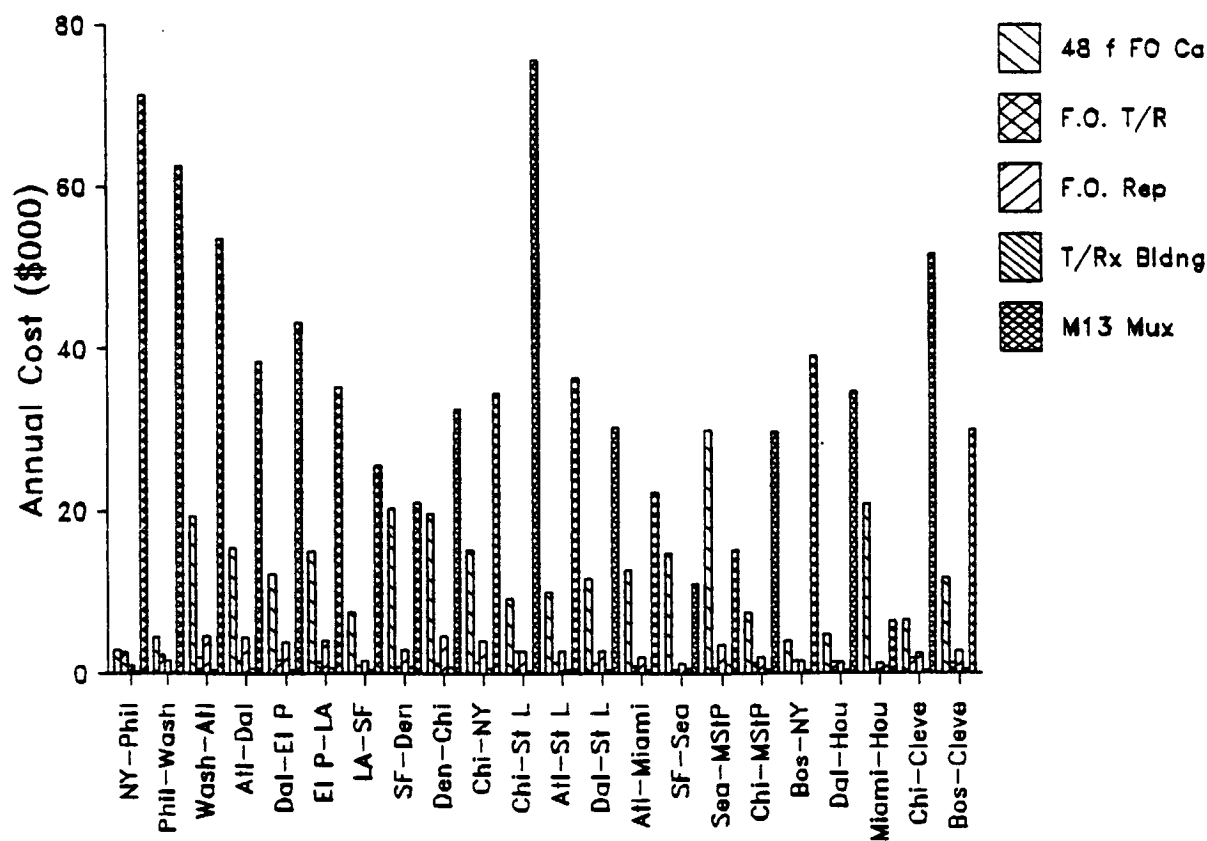
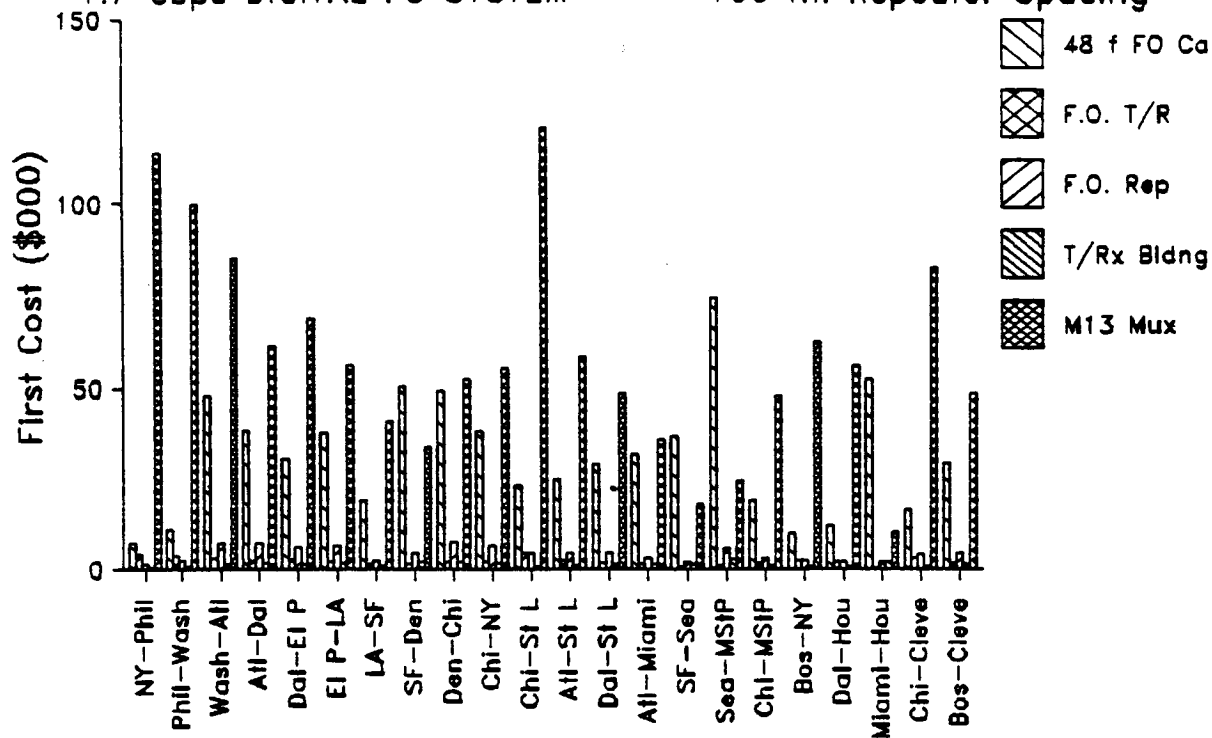


EXHIBIT 6.39B: 17 NODE NETWORK (1995-30%)

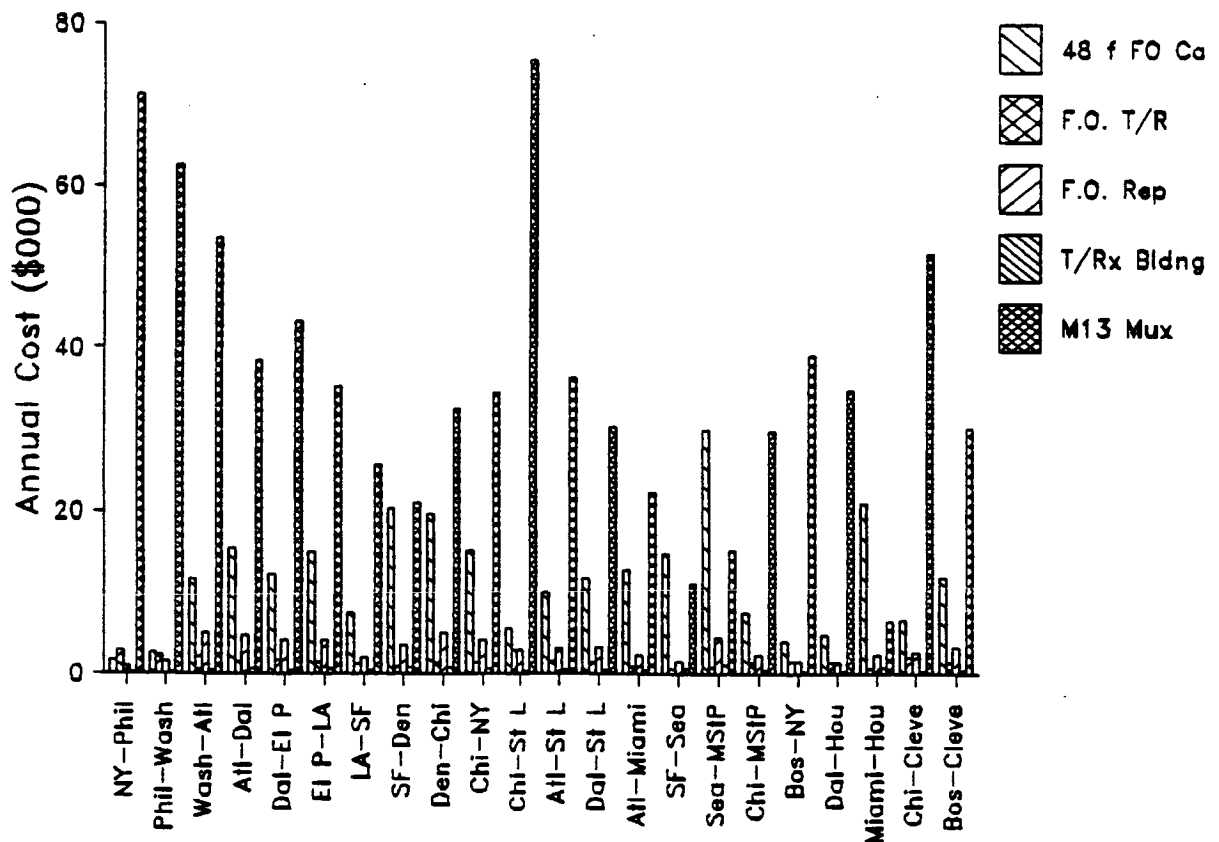
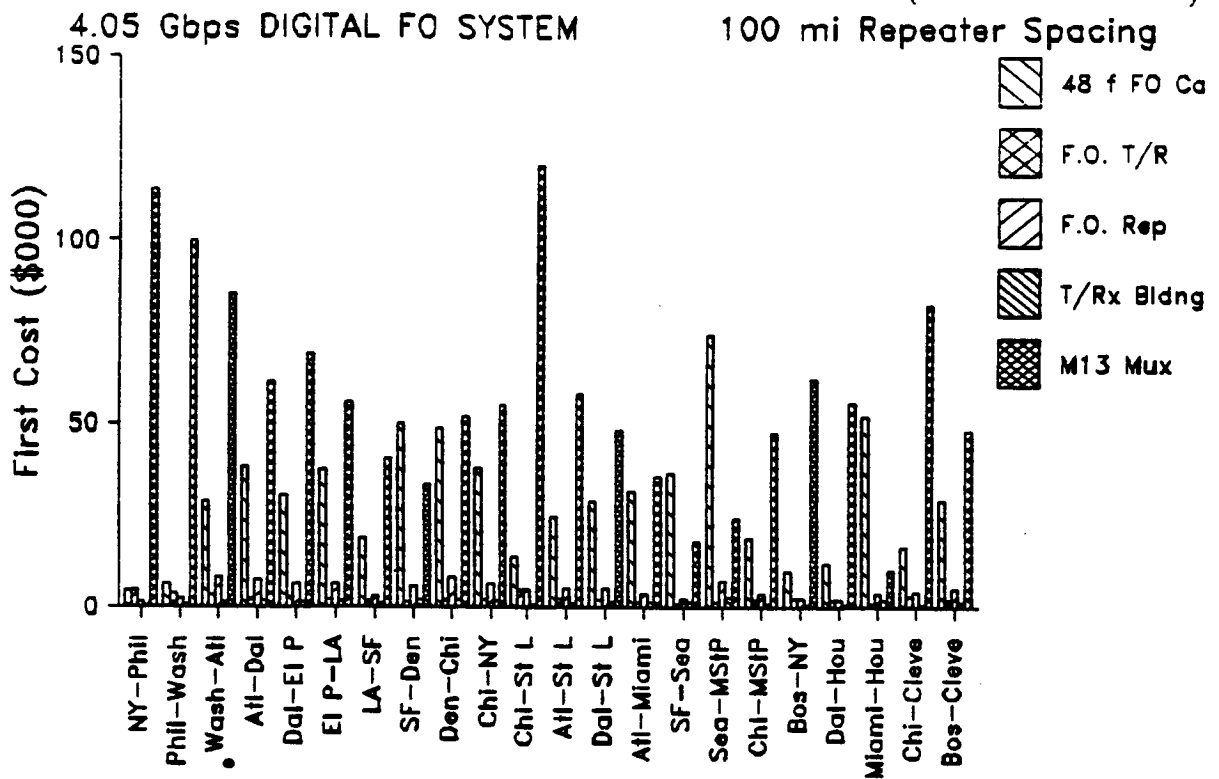


FIGURE 6.40: 17 NODE NETWORK .7 M 1995 TRAFFIC, 96F FO CABLE

Route	17 NODE NETWORK										
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-1
Traffic Factor	1.3685										
Mileage Factor	1.15										
Actual Traffic	873960	767040	654965	472800	529040	431232	312923	257114	398199	423195	924345
UF Ccts Req'd	1165280	1022720	873287	630000	705386	574977	417231	342818	530932	564260	1232460
Initial Fill	.8										
Total UF Circuits	1456600	1091609	881733	787499	881733	718721	521539	426523	663665	705324	1540575
System Mileage	95.51	142.38	622.76	827.24	657.85	808.45	402.85	1087.00	1084.49	817.57	298.92
Circuit Miles(000)	139116	182021	679810	651452	579781	591020	210099	465805	659830	576652	460508
1.7 Gbps DIGITAL FO SYSTEM											
100 mi Repeater Spacing											
First Cost (\$000)	5162	7695	33659	44711	35539	43695	21773	58750	56993	44188	16156
96 fiber FO Cable	346	516	2256	2996	2382	2928	1459	3937	3819	2961	1083
96f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735
Cable Installation	4284	3780	3180	2394	2646	2142	1512	1260	2016	2142	4410
F.O. Mtr/Rcvr	1428	2520	7350	7182	6174	6426	2520	4620	7392	6426	4410
F.O. Line Repeater	450	600	1350	1650	1350	1650	1050	1950	1950	1650	750
T/Rx Bldg, Power	113820	99908	85313	61530	68933	56175	40793	33495	51870	55125	120383
M13 Mux	127003	117274	142942	133566	127439	125822	75488	121231	140744	125443	151926
GRAND TOTAL - FC	1330	824	230	161	194	156	187	112	133	153	508
\$ per mile (000)	.91	.64	.21	.22	.22	.22	.36	.26	.20	.22	.33
\$/cct-mi											
Annual Cost (\$000)	2081	3103	13570	18026	14328	17616	8778	23686	22978	17815	6514
96 fiber FO Cable	139	208	909	1208	960	1181	588	1537	1540	1194	436
96f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909
Cable Installation	2687	2371	1976	1502	1660	1344	948	790	1265	1344	2766
F.O. Mtr/Rcvr	896	1581	4610	4505	3873	4031	1561	2898	4637	4031	2766
F.O. Line Repeater	180	240	539	659	539	659	419	779	779	659	300
T/Rx Bldg, Power	71392	62666	53511	38594	43237	35235	25587	21009	32535	34577	75509
M13 Mux	77985	71077	79093	69776	68796	65228	40474	57692	70466	64840	90199
GRAND TOTAL - AC	817	499	127	84	105	81	100	53	67	79	302
\$ per mile (000)	.56	.39	.12	.11	.12	.11	.19	.12	.10	.11	.20
\$/cct-mi											
4.05 Gbps DIGITAL FO SYSTEM											
100 mi Repeater Spacing											
First Cost (\$000)	5162	7695	33659	44711	35539	43695	21773	58750	56993	44188	16156
96 fiber FO Cable	346	516	2256	2996	2382	2928	1459	3937	3819	2961	1083
96f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735
Cable Installation	4284	3780	3180	2394	2646	2142	1512	1260	2016	2142	4410
F.O. Mtr/Rcvr	1428	2520	7350	7182	6174	6426	2520	4620	7392	6426	4410
F.O. Line Repeater	450	600	1350	1650	1350	1650	1050	1950	1950	1650	750
T/Rx Bldg, Power	113820	99908	85313	61530	68933	56175	40793	33495	51870	55125	120383
M13 Mux	127591	117274	143992	134070	128069	126074	76496	122701	141626	125695	152556
GRAND TOTAL - FC	1336	824	231	162	195	156	190	113	134	154	510
\$ per mile (000)	.92	.64	.21	.21	.22	.22	.36	.26	.20	.22	.33
\$/cct-mi											
Annual Cost (\$000)	2081	3103	13570	18026	14328	17616	8778	23686	22978	17815	6514
96 fiber FO Cable	139	208	909	1208	960	1181	588	1537	1540	1194	436
96f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909
Cable Installation	2964	2371	2173	1581	1778	1383	1185	988	1383	1383	2964
F.O. Mtr/Rcvr	986	1581	5071	4742	4149	4149	1976	3622	5071	4149	2964
F.O. Line Repeater	180	240	539	659	539	659	419	779	779	659	300
T/Rx Bldg, Power	71392	62666	53511	38594	43237	35235	25587	21009	32535	34577	75509
M13 Mux	78354	71077	79752	70092	69191	65386	41106	58614	71020	64998	90595
GRAND TOTAL - AC	820	499	126	85	105	81	102	54	67	80	303
\$ per mile (000)	.56	.39	.12	.11	.12	.11	.20	.13	.10	.11	.20
\$/cct-mi											

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FIGURE 6-40: 17 NODE NETWORK .7 M 1995 TRAFFIC, 96f FO CABLE

Traffic Factor	1.3685										
Mileage Factor	1.15										
Route	11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	Total
Actual Traffic	369444	272379	136126	185340	364126	478395	426903	78122	633229	369221	
WF Ccts Req'd	492592	363172	181501	247120	485501	637860	569205	104163	844305	492295	
Initial Fill											
Total WF Circuits	615741	453965	226876	308900	606876	797326	711506	130203	1055381	615369	16339206
System Mileage	623.89	681.88	786.34	1602.07	407.05	215.50	286.50	1118.75	354.02	630.83	14026.19
Circuit Miles(000)	384152	309550	178401	494878	247031	171822	182498	145665	373622	388195	8499123
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)	33720	36854	42500	86588	22000	11647	13863	60466	19134	34095	758088
96 fiber FO Cable	2260	2470	2848	5803	1474	781	929	4052	1282	2265	50303
96f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	1890	1386	766	1008	1890	2394	2142	504	3024	1890	48388
F.O. Rmtr/Rcvr	4410	3234	2016	5712	3150	2394	2142	2016	4032	1410	94500
F.O. Line Repeater	1350	1350	1500	2850	1050	750	750	2100	900	1350	29550
T/Rm Bldg, Power	48143	35490	17745	24150	47460	62318	55598	10185	82478	48090	1277063
M13 Num	101654	91585	79821	151488	83473	83697	79487	97045	116457	102112	2481066
GRAND TOTAL - FC	163	134	102	95	205	368	310	87	329	162	177
\$ per mile (000)	.26	.30	.45	.31	.34	.49	.44	.67	.31	.26	.29
\$/cct-mi											
Annual Cost (\$000)	13595	14858	17134	34909	8870	4696	5589	24378	7714	13746	305633
96 fiber FO Cable	911	996	1148	2339	594	315	375	1634	517	921	20482
96f Ca Splicing	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
Cable Installation	1185	869	474	632	1185	1502	1344	316	1897	1185	30664
F.O. Rmtr/Rcvr	2766	2028	1265	3583	1976	1502	1344	1265	2629	2766	59274
T/Rm Bldg, Power	539	539	599	1138	419	300	300	839	360	539	11804
M13 Num	30197	22261	11130	15148	29769	39088	34873	6308	51733	30164	801024
GRAND TOTAL - AC	53178	45906	36773	67981	45413	48777	45461	41964	67010	53351	1318455
\$ per mile (000)	.85	.67	.47	.42	.112	.226	.177	.38	.189	.85	.94
\$/cct-mi	.14	.15	.21	.14	.18	.28	.25	.29	.19	.14	.16
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing											
First Cost (\$000)	33720	36854	42500	86588	22000	11647	13863	60466	19134	34095	758088
96 fiber FO Cable	2260	2470	2848	5803	1474	781	929	4052	1282	2265	50303
96f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	2205	1575	945	1260	2305	2520	2205	945	3150	2205	53365
F.O. Rmtr/Rcvr	5145	3675	2520	7140	3675	2520	2205	3780	4200	5145	106365
F.O. Line Repeater	1350	1350	1500	2850	1050	750	750	2100	900	1350	29550
T/Rm Bldg, Power	48143	35490	17745	24150	47460	62318	55598	10185	82478	48090	1277063
M13 Num	102704	92215	80514	153168	84513	83949	79613	99250	116751	103162	2497908
GRAND TOTAL - FC	165	135	102	96	207	390	310	89	330	164	178
\$ per mile (000)	.27	.30	.45	.31	.34	.49	.44	.68	.31	.27	.29
\$/cct-mi											
Annual Cost (\$000)	13595	14858	17134	34909	8870	4696	5589	24378	7714	13746	305633
96 fiber FO Cable	911	996	1148	2339	594	315	375	1634	517	921	20482
96f Ca Splicing	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
Cable Installation	1383	988	593	790	1383	1561	1383	593	1976	1383	33786
F.O. Rmtr/Rcvr	3227	2305	1581	4478	2305	1561	1383	2371	2634	1383	66716
F.O. Line Repeater	539	539	599	1138	419	300	300	839	360	539	11804
T/Rm Bldg, Power	30197	22261	11130	15148	29769	39088	34873	6308	51733	30164	801024
M13 Num	53836	46302	37207	69035	45940	48936	45540	43347	67195	54009	1329019
GRAND TOTAL - AC	86	68	47	43	113	227	178	39	190	86	95
\$ per mile (000)	.14	.15	.21	.14	.19	.28	.25	.30	.18	.14	.16
\$/cct-mi											

EXHIBIT 6.40A: 17 NODE NETWORK (1995-30%)

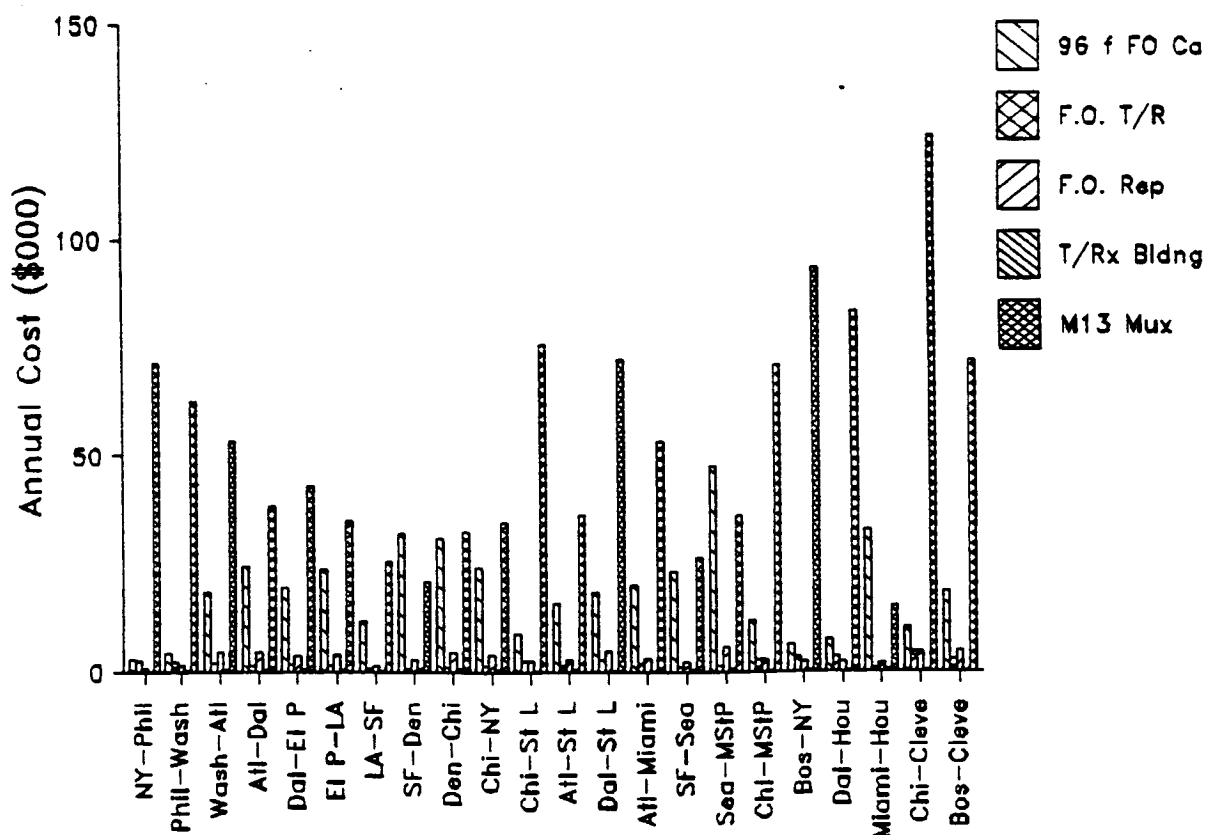
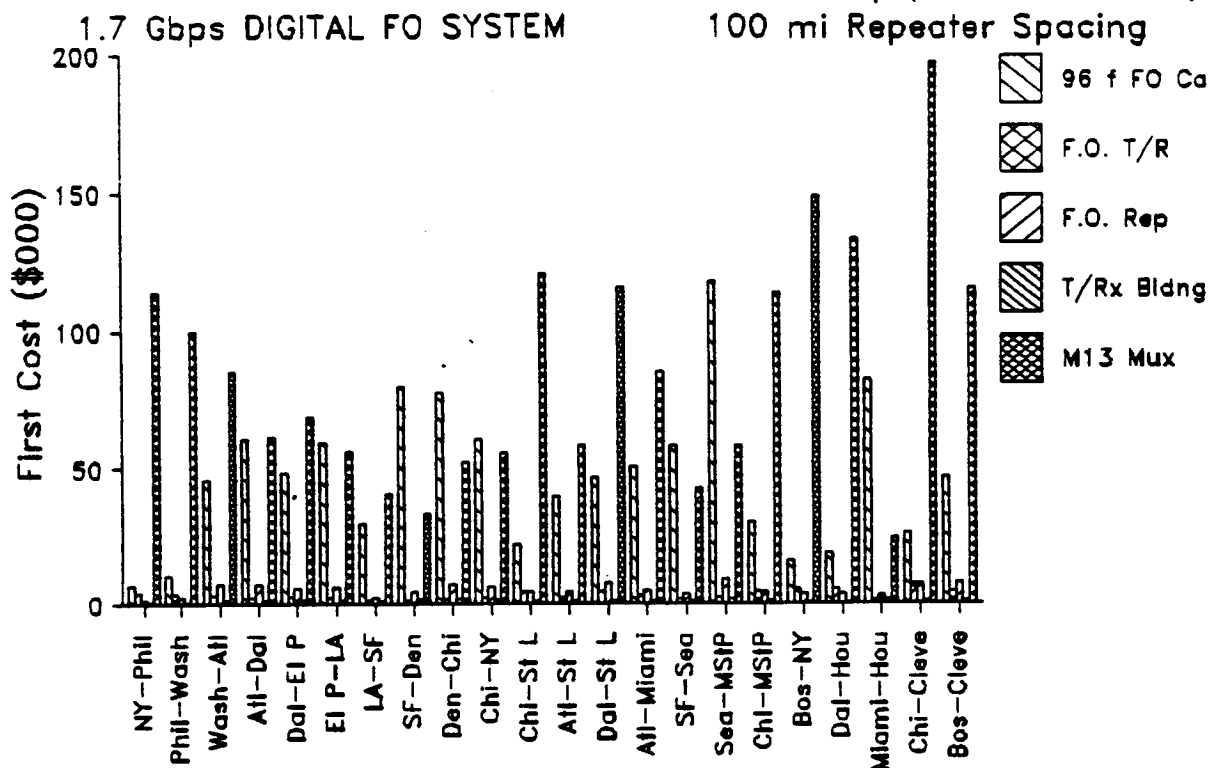


EXHIBIT 6.40B: 17 NODE NETWORK (1995-30%)

4.05 Gbps DIGITAL FO SYSTEM

100 mi Repeater Spacing

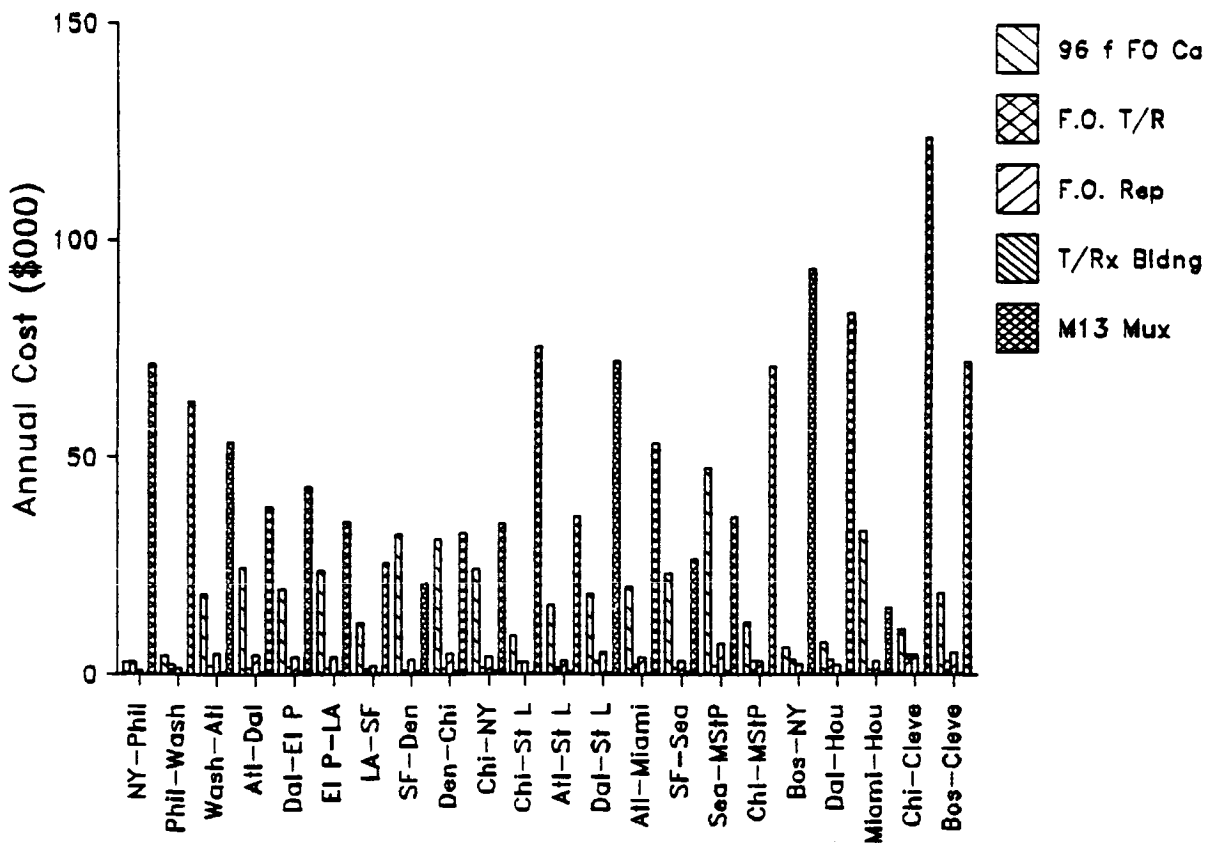
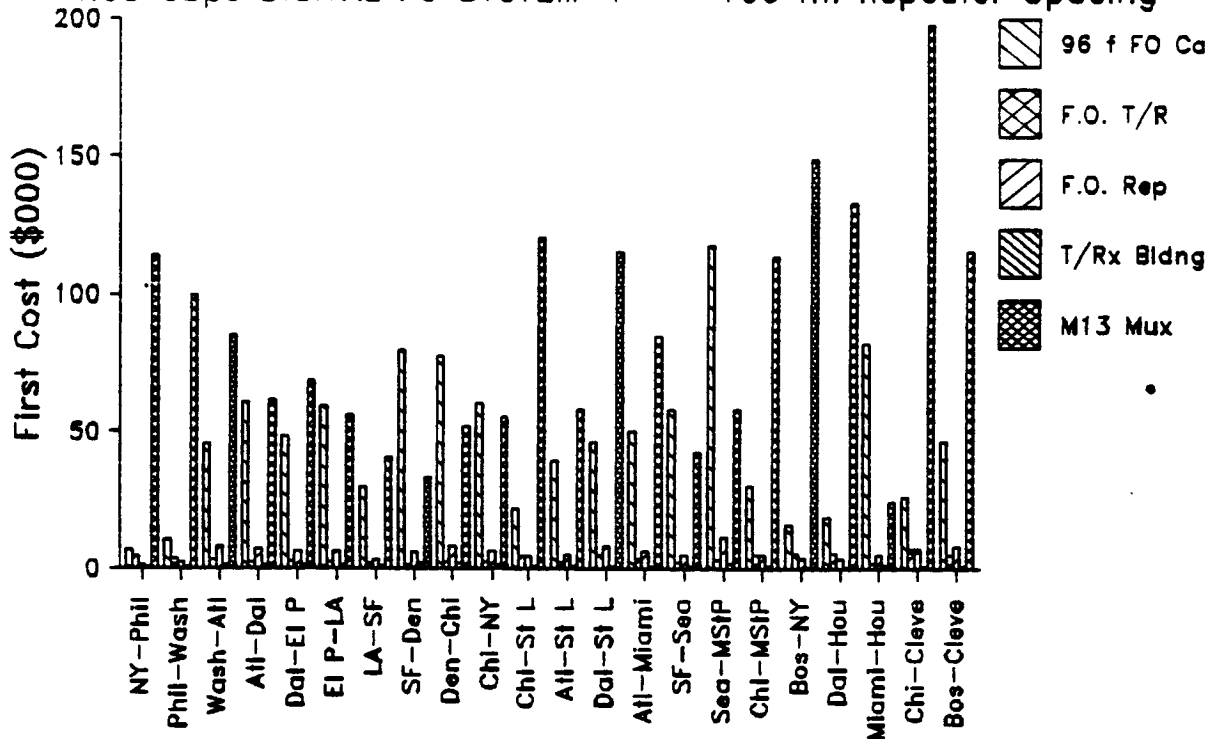


FIGURE 6-41: 2000 TRAFFIC, 48f FO CABLE

17 NODE NETWORK

Traffic Factor Mileage Factor	Route										
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4
Actual Traffic	2093097	1837029	1686615	1131617	1267027	1032784	749438	615776	953670	2213768	1067493
UF Ccts Req'd	2790796	2449372	2091486	1508822	1689370	1377046	999280	821035	1271860	1351378	1423323
Initial Fill	-6										
Total UF Circuits	3488495	3061715	2614358	1886028	2111712	1721306	1249063	1026293	1589450	1689222	3689613
System Mileage	95.51	142.38	622.76	827.24	657.55	808.46	402.86	1087.00	1054.49	617.67	298.92
Circuit Miles (000)	333177	435932	1628116	1560200	1388550	1391590	503179	1115584	1676064	1381057	951239
150 mi Repeater Spacing											
.05 Gbps DIGITAL FO SYSTEM											

4.05 Gbps DIGITAL FO SYSTEM

150 mi Repeater Spacing											
First Cost (\$000)	5455	8133	17766	23626	18780	23089	11505	31045	30116	23350	15270
48f fiber FO Cable	369	550	1203	1598	1270	1562	778	2100	2037	1560	1033
48f Ca Splicing	1513	2255	9865	13103	10416	12806	6361	17218	16703	12950	8469
Cable Installation	10080	9135	7560	5670	6300	6355	3760	3150	5040	5040	6355
F.O. Mtr/Rcvr	3360	3045	12600	11340	10500	10710	3760	8400	13440	10080	7140
F.O. Line Repeater	450	450	1050	1200	1050	1200	750	1800	1500	1200	900
T/Rx Bldg, Power	272580	239243	204278	147368	165008	134505	97598	80220	124215	131985	139020
N13 Mux	293507	262811	254341	203905	213323	189227	124872	143633	193052	186185	177187
GRAND TOTAL - FC	3076	1846	408	246	324	234	309	132	183	228	331
\$ per mile (000)	.86	.60	.16	.13	.15	.14	.25	.13	.12	.13	.19
\$/cct-mi											

Annual Cost (\$000)	2199	3279	7171	9525	7571	9309	4638	12516	12142	9414	6156
48f fiber FO Cable	149	222	485	644	512	630	314	847	821	637	416
48f Ca Splicing	610	909	3977	5283	4199	5163	2873	6942	6734	5221	3414
Cable Installation	6323	5730	4742	3556	3552	3359	2371	1976	3161	3161	3359
F.O. Mtr/Rcvr	2108	1910	7903	7113	6566	6718	2371	5269	8430	6323	4478
F.O. Line Repeater	180	180	419	479	419	479	300	599	599	479	360
T/Rx Bldg, Power	170973	150062	128131	92435	103499	84367	61217	50317	77913	82766	87199
N13 Mux	182541	162292	152828	119036	126739	110034	73783	78465	109800	108021	105383
GRAND TOTAL - AC	1911	1140	245	144	193	136	183	72	104	132	197
\$ per mile (000)	.55	.37	.09	.08	.09	.08	.15	.07	.07	.08	.11
\$/cct-mi											

8.1 Gbps DIGITAL FO SYSTEM

150 mi Repeater Spacing											
First Cost (\$000)	4066	17786	23626	18780	23089	11505	31045	30116	23350	8537	15270
48f fiber FO Cable	275	1203	1598	1270	1562	778	2100	2037	1560	1033	1033
48f Ca Splicing	1513	9865	13103	10416	12806	6361	17218	16703	12950	8469	8469
Cable Installation	10710	9450	5670	6300	5670	4410	3760	5040	5040	11340	5670
F.O. Mtr/Rcvr	3570	3150	12600	11340	10500	11340	10080	13440	10080	7560	7560
F.O. Line Repeater	450	450	1050	1200	1050	1200	750	1800	1500	1200	900
T/Rx Bldg, Power	272580	239243	204278	147368	165008	134505	97598	80220	124215	131985	139020
N13 Mux	291735	258889	254341	203905	213323	190172	125832	145943	193052	186185	177922
GRAND TOTAL - FC	3055	1818	408	246	324	235	312	134	183	228	333
\$ per mile (000)	.88	.59	.16	.13	.15	.14	.25	.13	.12	.13	.19
\$/cct-mi											

Annual Cost (\$000)	1100	1839	7171	9525	7571	9309	4638	12516	12142	9414	6156
48f fiber FO Cable	74	111	485	644	512	630	314	847	821	637	416
48f Ca Splicing	610	909	3977	5283	4199	5163	2873	6942	6734	5221	3414
Cable Installation	6718	5927	4742	3556	3552	3356	2766	2371	3161	3161	3356
F.O. Mtr/Rcvr	2239	1976	7903	7113	6566	6718	2766	6323	8430	6323	4742
F.O. Line Repeater	180	180	419	479	419	479	300	599	599	479	360
T/Rx Bldg, Power	170973	150062	128131	92435	103499	84367	61217	50317	77913	82766	87199
N13 Mux	181894	160805	152828	119036	126739	110617	74874	79914	109800	108021	105844
GRAND TOTAL - AC	1904	1129	245	144	193	137	185	74	104	132	198
\$ per mile (000)	.55	.37	.09	.08	.09	.08	.15	.07	.07	.08	.11
\$/cct-mi											

FIGURE 6.41: 2000 TRAFFIC, 48f FO CABLE

17 NODE NETWORK

Traffic Factor	3.2775										
Mileage Factor	1.15										
Route	11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	Total
Actual Traffic	884804	652337	326015	443882	872066	1145737	1022416	187099	1516557	884270	
VF Ccts Req'd	1179738	869783	434687	591843	1162755	1527649	1363221	249465	2022075	1179026	
Initial Fill											
Total VF Circuits	1474673	1067228	543359	739803	1453443	1909561	1704026	311831	2527594	1473763	39131713
System Mileage	623.89	681.88	786.34	1602.07	407.05	215.50	256.50	1118.75	354.02	630.83	14026.19
Circuit Miles(000)	920029	741360	427262	1185213	591630	411508	437076	348863	894609	929710	20355043

4.05 Gbps DIGITAL FO SYSTEM 150 mi Repeater Spacing

First Cost (\$000)	17818	19475	22458	45755	11625	6155	7326	31952	10111	18017	415919
48 fiber FO Cable	1205	1317	1519	3095	786	416	496	2161	684	1219	28136
48f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	4725	3150	1890	2520	4725	5670	5358	1260	7245	4725	118440
F.O. Mtr/Rcvr	7875	5250	3780	9240	4725	3780	3070	3360	7245	7875	188235
F.O. Line Repeater	1050	1050	1200	1950	750	600	600	1900	750	1050	22350
1/RM Bldng, Power	115238	84945	42473	57803	113558	149205	133140	24413	197505	115185	3057758
M13 Run	157793	125988	85775	145739	142617	169239	154849	82367	229147	158063	4023012
GRAND TOTAL - FC	253	185	109	91	350	785	603	74	647	251	287
\$ per mile (000)	.17	.17	.20	.12	.24	.41	.35	.24	.26	.17	.20
\$/cct-mi											

Annual Cost (\$000)

48 fiber FO Cable	7184	7851	9054	18447	4687	2481	2953	12882	4076	7264	167683
48f Ca Splicing	486	531	612	1246	317	168	200	871	276	491	11343
Cable Installation	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Mtr/Rcvr	2964	1976	1188	1581	2964	3556	3359	790	4544	2964	74290
F.O. Line Repeater	4940	3293	2371	5796	2964	2371	2239	2108	4544	4940	99251
1/RM Bldng, Power	419	419	479	779	300	240	240	599	300	419	8928
M13 Run	72282	53281	26540	36256	71228	93687	83611	16312	123683	72249	1917947
GRAND TOTAL - AC	92258	71706	45364	74337	85058	103780	94140	39707	139884	92355	2369016
\$ per mile (000)	148	105	58	46	209	482	367	35	395	146	169
\$/cct-mi	.10	.10	.11	.06	.14	.25	.22	.11	.16	.10	.12

8.1 Gbps DIGITAL FO SYSTEM 150 mi Repeater Spacing

First Cost (\$000)	17818	19475	22458	45755	11625	6155	7326	31952	10111	18017	400588
48 fiber FO Cable	1205	1317	1519	3095	786	416	496	2161	684	1219	27099
48f Ca Splicing	9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation	5040	3780	2520	3150	5040	5670	5670	1890	7560	5040	126000
F.O. Mtr/Rcvr	8400	6300	5040	11550	5040	3780	3780	5040	7560	8400	170820
F.O. Line Repeater	1050	1050	1200	1950	750	600	600	1900	750	1050	22350
1/RM Bldng, Power	115238	84945	42473	57803	113558	149205	133140	24413	197505	115185	3057758
M13 Run	158633	127668	87665	148279	143247	169239	155074	84677	229777	158903	4026489
GRAND TOTAL - FC	254	187	111	93	352	785	605	76	649	252	287
\$ per mile (000)	.17	.17	.21	.13	.24	.41	.35	.24	.26	.17	.20
\$/cct-mi											

Annual Cost (\$000)

48 fiber FO Cable	7184	7851	9054	18447	4687	2481	2953	12882	4076	7264	161502
48f Ca Splicing	486	531	612	1246	317	168	200	871	276	491	10925
Cable Installation	3984	4355	5022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Mtr/Rcvr	3161	2371	1581	1576	3161	3556	3556	1185	4742	3161	79032
F.O. Line Repeater	5269	3952	3161	7245	3161	2371	2371	3161	4742	5269	106957
1/RM Bldng, Power	419	419	479	779	300	240	240	599	300	419	8928
M13 Run	72282	53281	26540	36256	71228	93687	83611	16312	123683	72249	1917947
GRAND TOTAL - AC	92785	72760	46550	76181	85453	103780	94469	41156	140279	92852	2374864
\$ per mile (000)	149	107	59	48	210	482	368	37	396	147	169
\$/cct-mi	.10	.10	.11	.06	.14	.25	.22	.12	.16	.10	.12

EXHIBIT 6.41A: 17 NODE NETWORK (2000)

4.05 Gbps DIGITAL FO SYSTEM

150 mi Repeater Spacing

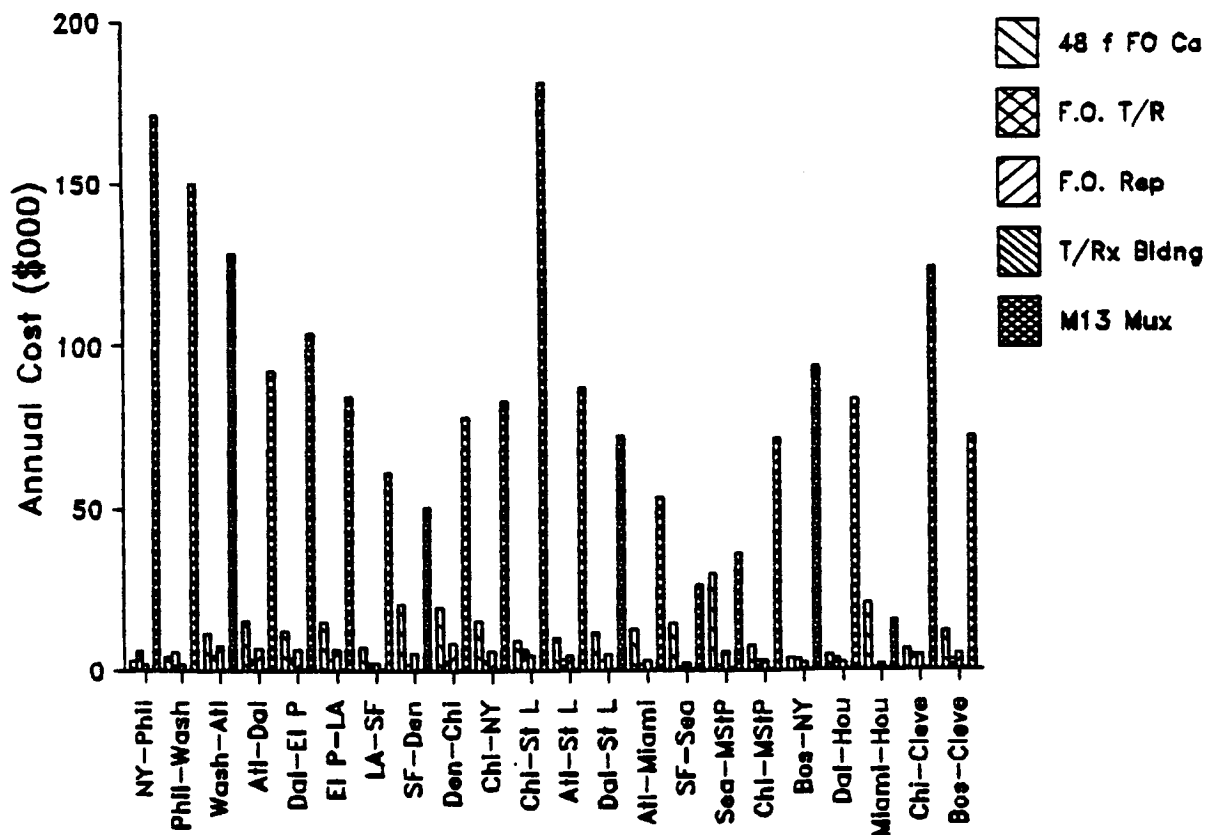
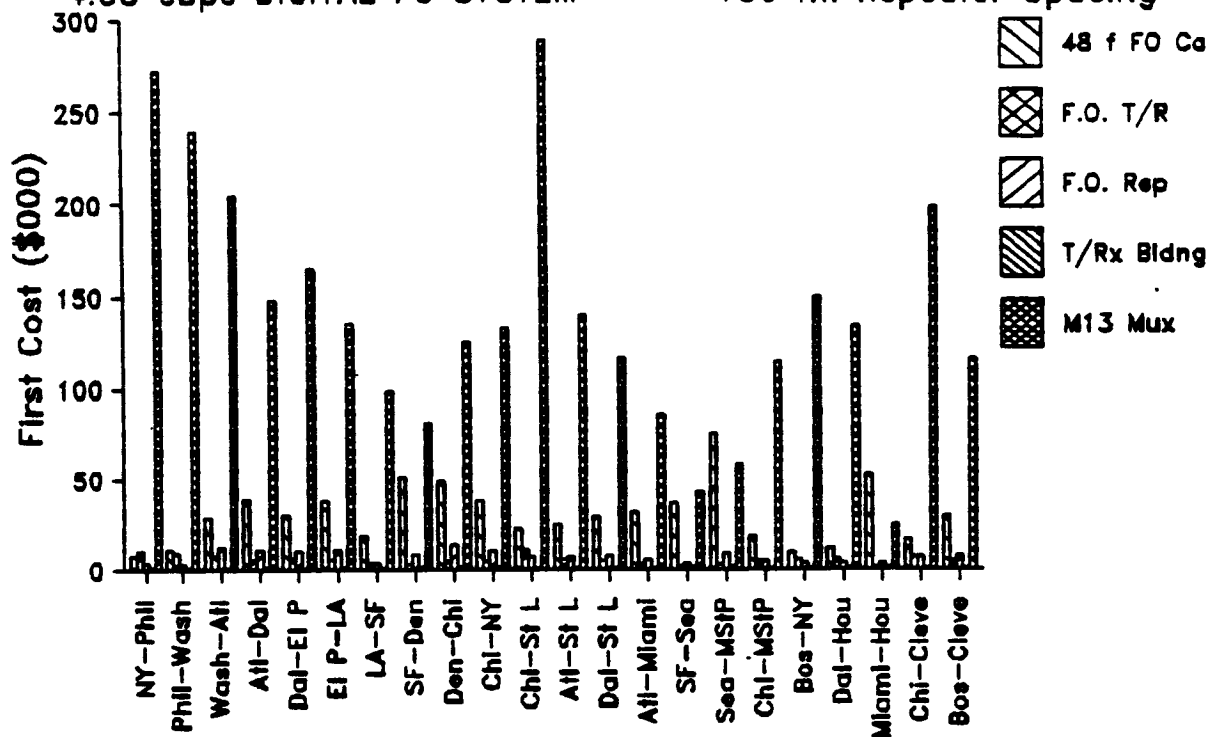
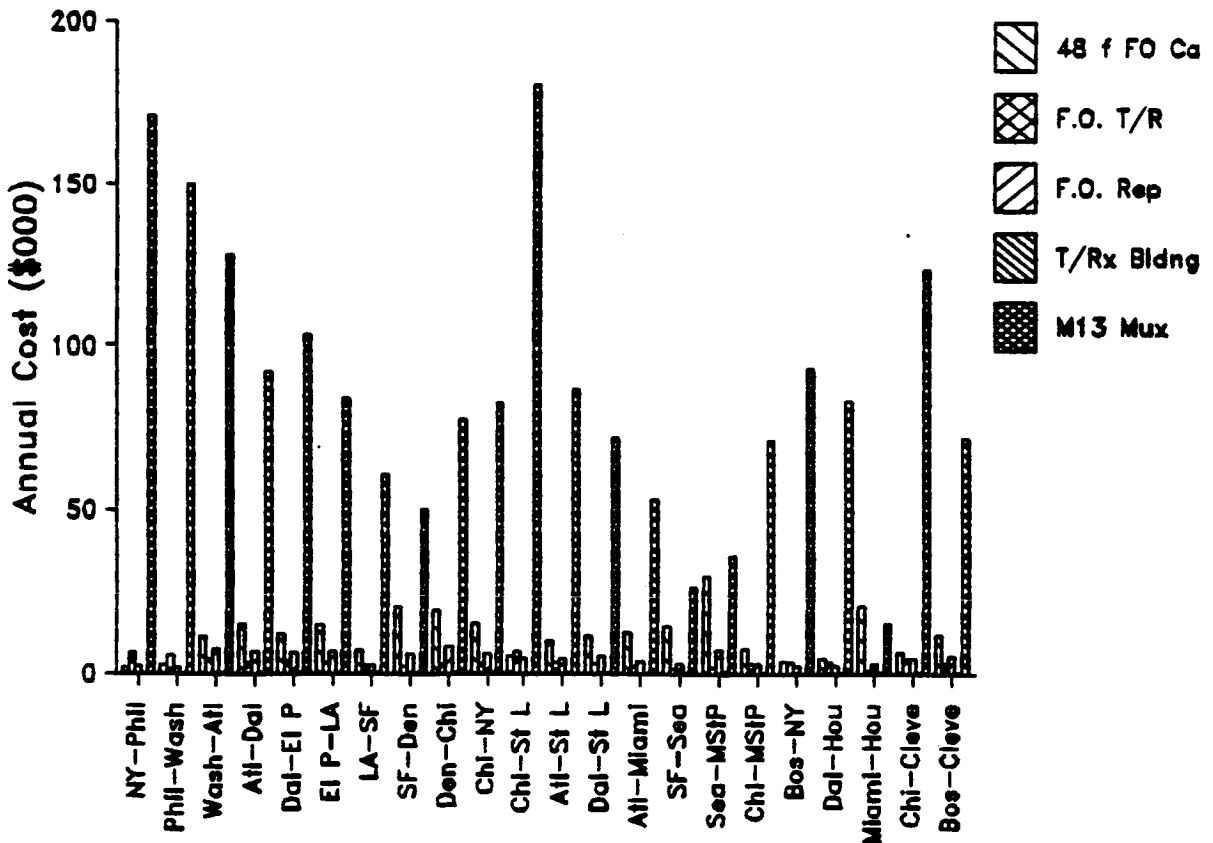
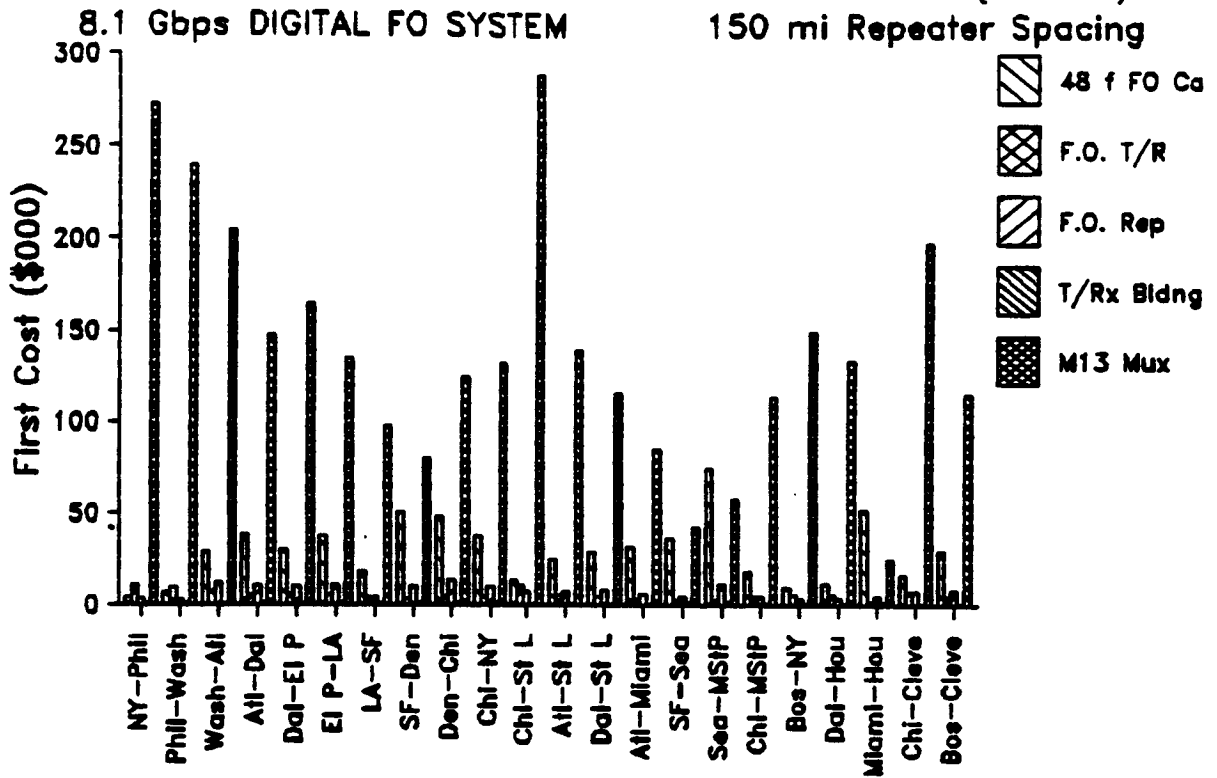


EXHIBIT 6.41B: 17 NODE NETWORK (2000)



2000 TRAFFIC, 96f FO CABLE

17 NODE NETWORK

FIGURE 6.42:

Traffic Factor	3.2775											
Mileage Factor	1.15											
Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-4	
Actual Traffic	2093097	1837029	1568615	1131617	1267027	1032784	749438	615776	953670	1013533	2213768	1067423
VF Ccts Req'd	2790796	2449372	2091486	1508822	1689370	1377045	999250	821035	1271560	1351378	2951690	1423323
Initial Fill	-6	3061715	2614358	1866028	2111712	1721306	1249063	1026293	1589450	1689222	3689613	1779154
Total VF Circuits	95.51	142.38	622.76	627.24	657.55	868.45	402.85	1082.00	1054.49	817.57	298.92	534.66
System Mileage	333177	435932	1628116	1560200	1388550	1391590	503179	1110584	1676064	1381057	1102897	951239
Circuit Miles(000)												
4.05 Gbps DIGITAL FO SYSTEM 150 mi Repeater Spacing												
First Cost (\$000)	5162	7695	33659	44711	35539	43695	21773	58750	56993	44188	16156	28897
96 fiber FO Cable	346	516	2256	2996	2382	2928	1459	3937	3819	2961	1083	1937
96f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735	8469
Cable Installation	10080	9135	7560	5670	6300	5355	3780	3150	5040	5040	10710	5355
F.O. Mtr/Rcvr	3360	3045	12600	11340	10500	10710	7580	6400	13440	10080	7140	7140
F.O. Line Repeater	450	450	1050	1200	1050	1200	750	1500	1500	1200	600	900
T/Rx Bldg, Power	272580	239243	204278	147368	185008	134505	97598	80220	124215	131965	289278	139020
N13 Num	293491	262339	271267	226388	231194	211199	135521	173176	221711	208405	328701	191718
GRAND TOTAL - FC	3073	1843	436	274	352	261	336	159	210	255	1100	359
\$ per mile (000)	.08	.60	.17	.15	.17	.15	.27	.16	.13	.15	.30	.20
\$/cct-mi												
Annual Cost (\$000)	2081	3103	13570	18026	14328	17616	8778	23686	22978	17815	6514	11650
96 fiber FO Cable	139	208	909	1208	960	1181	588	1587	1540	1194	436	781
96f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909	3414
Cable Installation	6335	5730	4742	3556	3952	3359	2371	1976	3161	3161	6718	3359
F.O. Mtr/Rcvr	2108	1910	7903	7113	6586	6718	2371	5269	6430	6323	4478	4478
F.O. Line Repeater	180	180	419	479	419	479	300	599	599	479	360	360
T/Rx Bldg, Power	170973	150062	128131	92435	103499	84367	61217	50317	77913	82766	180819	87199
N13 Num	182413	162102	159652	128100	133944	118882	78197	90376	121355	116979	201114	111241
GRAND TOTAL - AC	1910	1139	256	155	204	147	194	83	115	143	673	208
\$ per mile (000)	.55	.37	.10	.08	.10	.09	.16	.08	.07	.08	.18	.12
\$/cct-mi												
8.1 Gbps DIGITAL FO SYSTEM 150 mi Repeater Spacing												
First Cost (\$000)	5162	7695	33659	44711	35539	43695	21773	58750	56993	44188	16156	28897
96 fiber FO Cable	346	516	2256	2996	2382	2928	1459	3937	3819	2961	1083	1937
96f Ca Splicing	1513	2255	9865	13103	10416	12806	6381	17218	16703	12950	4735	8469
Cable Installation	10710	9450	7560	5670	6300	5670	4410	3780	5040	5040	11340	5670
F.O. Mtr/Rcvr	3570	3150	12600	11340	10500	11340	4410	10080	13440	10080	7560	7560
F.O. Line Repeater	450	450	1050	1200	1050	1200	750	1500	1500	1200	600	900
T/Rx Bldg, Power	272580	239243	204278	147368	185008	134505	97598	80220	124215	131965	289278	139020
N13 Num	294331	262759	271267	226388	231194	212144	136781	175486	221711	208405	329751	192453
GRAND TOTAL - FC	3082	1845	436	274	352	262	340	161	210	255	1103	360
\$ per mile (000)	.88	.60	.17	.15	.17	.15	.27	.16	.13	.15	.30	.20
\$/cct-mi												
Annual Cost (\$000)	2081	3103	13570	18026	14328	17616	8778	23686	22978	17815	6514	11650
96 fiber FO Cable	139	208	909	1208	960	1181	588	1587	1540	1194	436	781
96f Ca Splicing	610	909	3977	5283	4199	5163	2573	6942	6734	5221	1909	3414
Cable Installation	6718	5927	4742	3556	3952	3556	2766	2371	3161	3161	7113	3556
F.O. Mtr/Rcvr	2239	1976	7903	7113	6586	7113	2766	6323	6430	6323	4742	4742
F.O. Line Repeater	180	180	419	479	419	479	300	599	599	479	360	360
T/Rx Bldg, Power	170973	150062	128131	92435	103499	84367	61217	50317	77913	82766	180819	87199
N13 Num	182940	162365	159652	128100	133944	119475	78988	91825	121355	116979	201773	111702
GRAND TOTAL - AC	1915	1140	256	155	204	148	196	84	115	143	675	209
\$ per mile (000)	.55	.37	.10	.08	.10	.09	.16	.08	.07	.08	.18	.12
\$/cct-mi												

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OF POOR QUALITY

FIGURE 6.42: 1P NODE NETWORK 2000 TRAFFIC, 96F FO CABLE

Traffic Factor Mileage Factor		Route										
3.2775 1.15		11-5	12-4	13-8	13-14	14-10	15-1	16-5	16-12	17-10	17-15	Total
Actual Traffic		884804	652337	326015	443882	872066	1145737	1022416	187099	1516557	884270	
VF Ccts Req'd		1179736	869783	434687	591843	1162755	1527649	1363221	249465	2022075	1179026	
Initial Fill												
Total VF Circuits		1474673	1087228	543359	739803	1453443	1909561	1704026	311831	2527594	1473763	39131713
System Mileage		623.89	661.88	786.34	1502.07	407.05	215.50	256.50	1118.75	354.02	630.63	14026.19
Circuit Miles(000)		920029	741360	427262	1185213	591630	411508	437076	348863	894809	929710	20355043
4.05 Gbps DIGITAL FO SYSTEM												
150 mi Repeater Spacing												
First Cost (\$000)		33720	36854	42500	86588	22000	11647	13863	60466	19134	34095	758088
96 fiber FO Cable		2260	2470	2848	5803	1474	791	929	4052	1282	2265	50803
96F Ca Splicing		9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation		4725	3150	1890	2520	4725	5670	5353	1260	7245	4725	118440
F.O. Mtr/Rcvr		7875	5250	3780	9240	4725	3780	3570	3360	7245	7875	158235
F.O. Line Repeater		1050	1050	1200	1950	750	600	600	1500	750	1050	22350
T/Rx Bldg, Power		115238	84945	42473	57803	113558	149205	133140	24413	197505	115185	3057758
M13 Nuh		115238	84945	42473	57803	113558	149205	133140	24413	197505	115185	3057758
GRAND TOTAL - FC		174749	144520	107146	189280	153680	175096	161520	112772	238769	175207	4387848
\$ per mile (000)		280	212	136	118	378	813	630	101	674	278	313
\$/cct-mi		.19	.19	.25	.16	.26	.43	.37	.32	.27	.19	.22
Annual Cost (\$000)												
96 fiber FO Cable		13595	14858	17134	34909	8870	4696	5589	24378	7714	13746	305633
96F Ca Splicing		911	996	1148	2339	594	315	375	1634	517	921	20482
Cable Installation		3984	4355	6022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Mtr/Rcvr		2964	1976	1185	1581	2964	3556	3359	790	4544	2964	74290
F.O. Line Repeater		4940	3293	2371	5796	2964	2371	2239	2108	4544	4940	99251
T/Rx Bldg, Power		419	419	479	779	300	240	240	599	300	419	8928
M13 Nuh		72282	53281	26640	36256	71228	93587	83511	15312	123883	72249	1917947
GRAND TOTAL - RC		99034	79178	53980	91891	89518	106141	96950	51966	143763	99267	2516104
\$ per mile (000)		159	116	69	57	220	493	378	46	406	157	179
\$/cct-mi		.11	.11	.13	.08	.15	.26	.22	.15	.16	.11	.12
8.1 Gbps DIGITAL FO SYSTEM												
150 mi Repeater Spacing												
First Cost (\$000)		33720	36854	42500	86588	22000	11647	13863	60466	19134	34095	758088
96 fiber FO Cable		2260	2470	2848	5803	1474	791	929	4052	1282	2265	50803
96F Ca Splicing		9882	10801	12456	25377	6448	3413	4063	17721	5608	9992	222175
Cable Installation		5040	3780	2520	3150	5040	5670	5670	1890	7560	5040	126000
F.O. Mtr/Rcvr		8400	6300	5040	11550	5040	3780	3780	5040	7560	8400	170520
F.O. Line Repeater		1050	1050	1200	1950	750	600	600	1500	750	1050	22350
T/Rx Bldg, Power		115238	84945	42473	57803	113558	149205	133140	24413	197505	115185	3057758
M13 Nuh		115238	84945	42473	57803	113558	149205	133140	24413	197505	115185	3057758
GRAND TOTAL - FC		175589	146200	109036	192220	154310	175096	162045	115082	239399	176047	4407693
\$ per mile (000)		281	214	139	120	379	813	632	103	676	279	314
\$/cct-mi		.19	.20	.26	.16	.26	.43	.37	.33	.27	.19	.22
Annual Cost (\$000)												
96 fiber FO Cable		13595	14858	17134	34909	8870	4696	5589	24378	7714	13746	305633
96F Ca Splicing		911	996	1148	2339	594	315	375	1634	517	921	20482
Cable Installation		3984	4355	6022	10231	2599	1376	1638	7144	2261	4029	89573
F.O. Mtr/Rcvr		3161	2371	1581	1976	3161	3556	3556	1185	4742	3161	79032
F.O. Line Repeater		5269	3952	3161	7245	3161	2371	2371	3161	4742	5269	106967
T/Rx Bldg, Power		419	419	479	779	300	240	240	599	300	419	8928
M13 Nuh		72282	53281	26640	36256	71228	93587	83511	15312	123883	72249	1917947
GRAND TOTAL - RC		99621	80231	55166	93735	89914	106141	97279	53414	144158	99794	2528551
\$ per mile (000)		160	118	70	59	221	493	379	48	407	158	180
\$/cct-mi		.11	.11	.13	.08	.15	.26	.22	.15	.16	.11	.12

EXHIBIT 6.42A: 17 NODE NETWORK (2000)

4.05 Gbps DIGITAL FO SYSTEM

150 mi Repeater Spacing

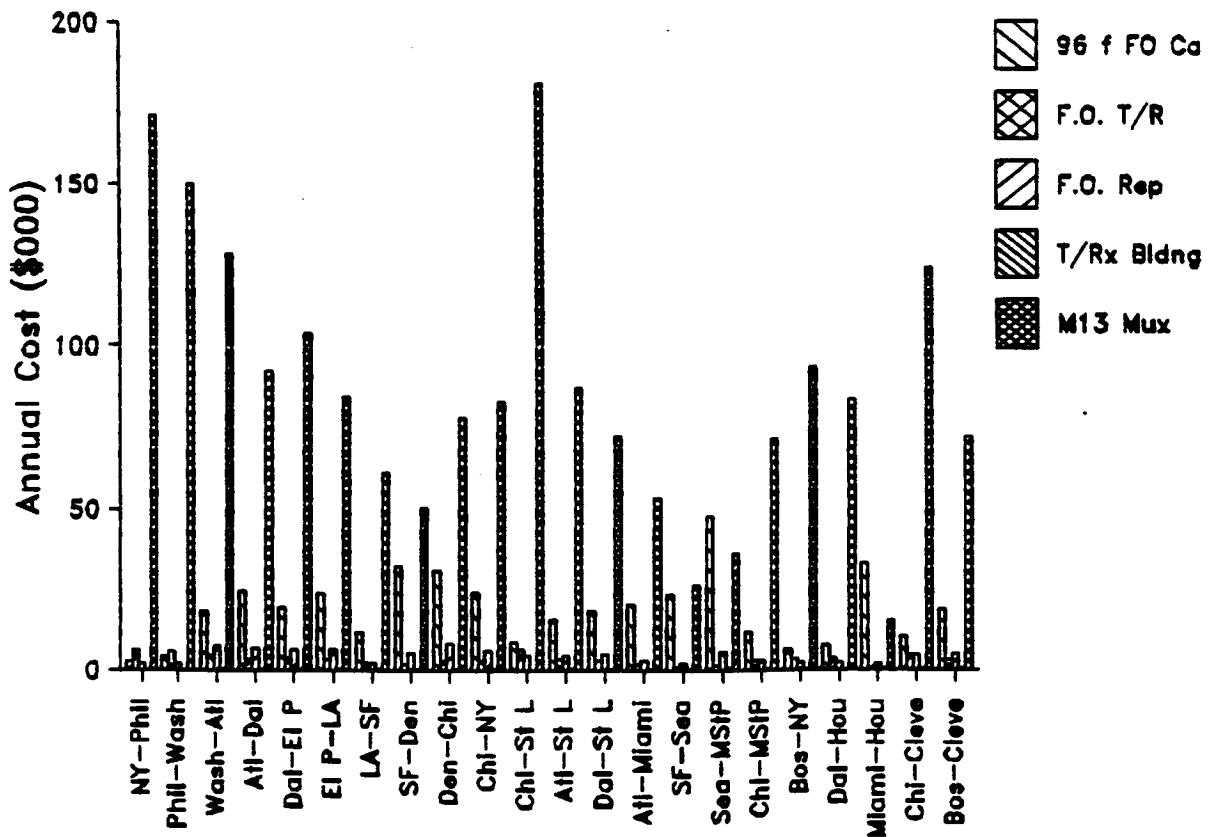
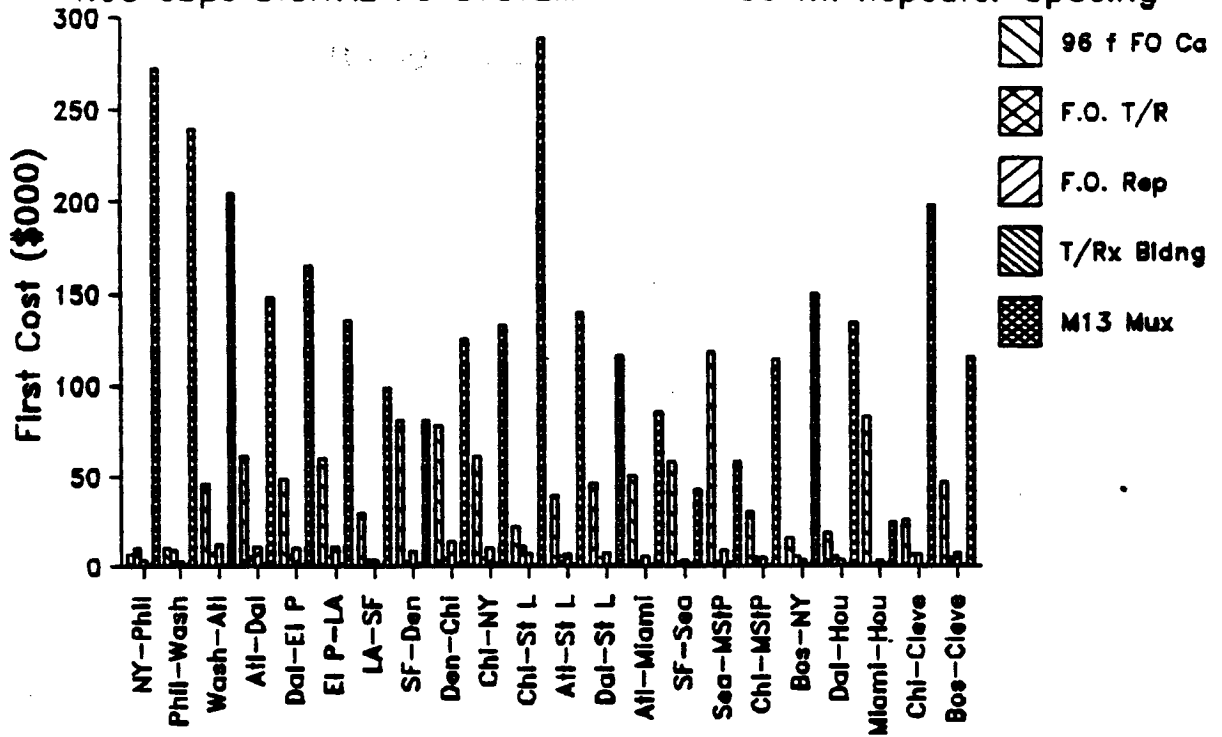


EXHIBIT 6.42B: 17 NODE NETWORK (2000)

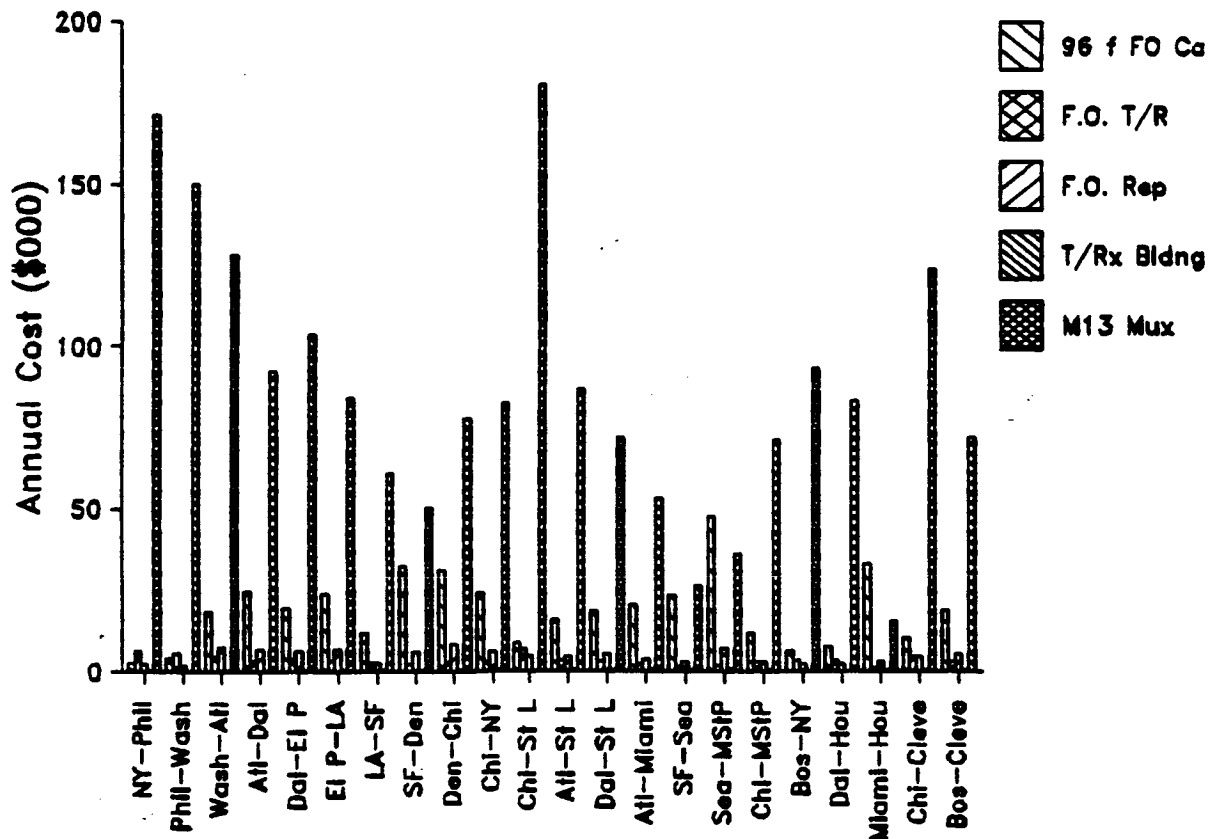
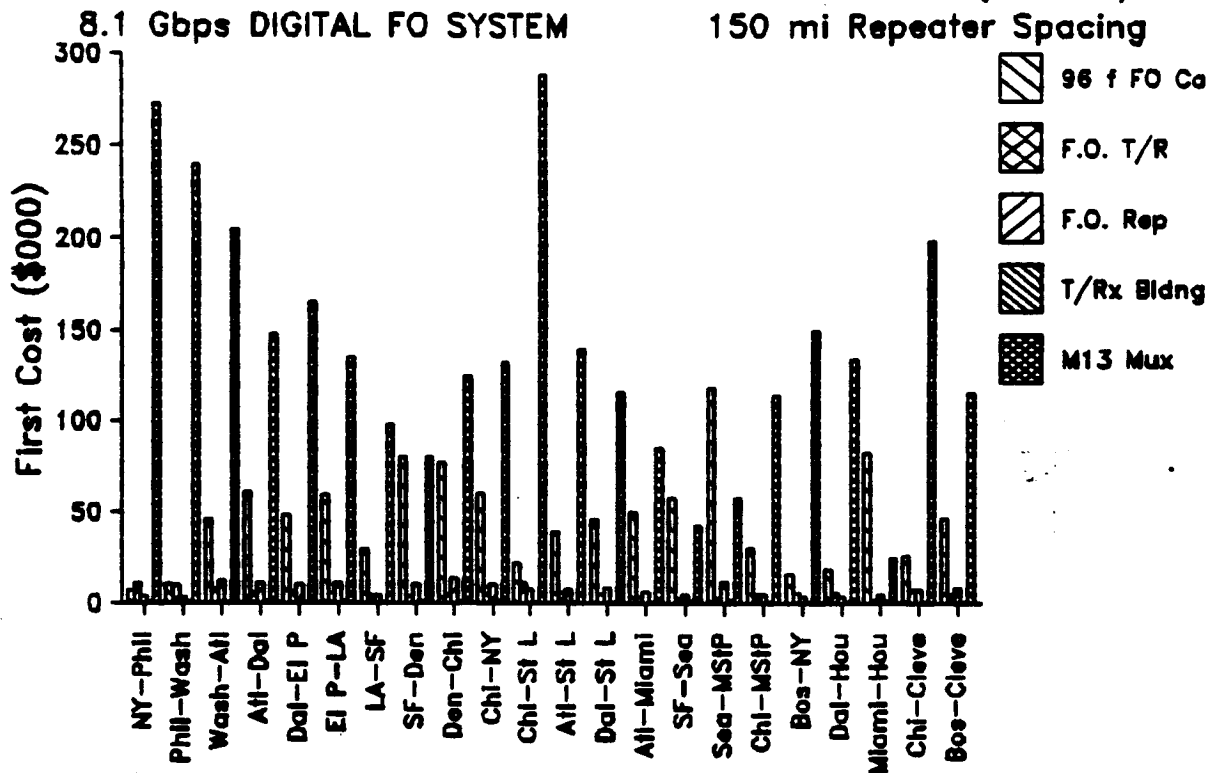


EXHIBIT 6.43: 23 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)

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Link	Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
1-2	Traffic	83.05	123.81	541.53	719.34	886.71	358.23	350.30	945.22	916.95	259.93	236.60	464.92	592.94	198.19	683.77
1-3	51631.3	51631.3														
1-4	45612.9	45612.9	45612.9													
1-5	68942.4	68942.4	68942.4	68942.4												
1-6	13051.0	13051.0	13051.0	13051.0	13051.0											
1-7	6760.3	6760.3	6760.3	6760.3	6760.3	6760.3										
1-8	23384.7	23384.7	23384.7	23384.7	23384.7	23384.7	23384.7									
1-9	16167.2	16167.2														
1-10	16531.2	16531.2														
1-11	17659.1	17659.1														
1-12	16818.4	16818.4	16818.4													
1-13	11015.6	11015.6														
1-14	15405.7	15405.7														
1-15	43977.9															
1-16	19982.2															
1-17	32350.7	32350.7														
1-18	26286.1	26286.1														
1-19	11006.7	11006.7														
1-20	8688.9	8688.9	8688.9													
1-21	22971.4	22971.4	22971.4	22971.4												
1-22	10620.2	10620.2														
1-23	11095.5	11095.5														
2-3	25087.1	25087.1														
2-4	34017.0	34017.0	34017.0													
2-5	6193.2	6193.2	6193.2	6193.2												
2-6	3526.4	3526.4	3526.4	3526.4	3526.4											
2-7	11249.4	11249.4	11249.4	11249.4	11249.4	11249.4										
2-8	7795.7	7795.7														
2-9	7972.3	7972.3														
2-10	26833.0															
2-11	8530.5															
2-12	8170.1	8170.1	8170.1													
2-13	5358.6															
2-14	8709.8															
2-15	16790.8	16790.8														
2-16	8941.7															
2-17	15931.1															
2-18	13062.6															
2-19	5750.3															
2-20	5463.7	5463.7	5463.7													
2-21	11024.2	11024.2	11024.2	11024.2												
2-22	5220.6															
2-23	5546.6															
3-4	41912.0															
3-5	7462.7	7462.7	7462.7	7462.7												
3-6	5103.5	5103.5	5103.5	5103.5	5103.5											
3-7	12764.3	12764.3	12764.3	12764.3	12764.3	12764.3										
3-8	8892.2	8892.2														
3-9	9163.0	9163.0														
3-10	31179.9	31179.9														
3-11	10345.6	10345.6	10345.6													
3-12	11198.6															
3-13	6202.3	6202.3														
3-14	9939.9	9939.9														
3-15	16107.1	16107.1	16107.1													
3-16	8814.6	8814.6														
3-17	18909.3	18909.3														
3-18	14943.7	14943.7														
3-19	7806.1	7806.1														
3-20	6472.2	6472.2														
3-21	13124.6	13124.6														
3-22	6957.2	6957.2														
3-23	7243.0	7243.0														

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EXHIBIT 6.43: 23 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)

Link	Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
12-14	4302.5	83.05	123.81	541.53	719.34	866.71	358.23	350.3	945.22	916.95	259.93	236.6	164.92	592.94	198.19	683.77
12-15	6024.8	6024.8	6024.8	6024.8							3545.4	3545.4	3545.4	3545.4		
12-16	3545.4										7052.3	7052.3	7052.3	7052.3		
12-17	8799.1		8799.1	8799.1							6024.8	6024.8	6024.8	6024.8		
12-18	7052.3										3545.4	3545.4	3545.4	3545.4		
12-19	2507.9		2507.9	2507.9							7052.3	7052.3	7052.3	7052.3		
12-20	6024.2										6024.2	6024.2	6024.2	6024.2		
12-21	9141.0										9141.0	9141.0	9141.0	9141.0		
12-22	4136.7										4136.7	4136.7	4136.7	4136.7		
12-23	3917.0										3917.0	3917.0	3917.0	3917.0		
13-14	5660.0										5660.0	5660.0	5660.0	5660.0		
13-15	4565.2										4565.2	4565.2	4565.2	4565.2		
13-16	2655.7										2655.7	2655.7	2655.7	2655.7		
13-17	6916.8										6916.8	6916.8	6916.8	6916.8		
13-18	7290.4										7290.4	7290.4	7290.4	7290.4		
13-19	1780.6										1780.6	1780.6	1780.6	1780.6		
13-20	2074.8										2074.8	2074.8	2074.8	2074.8		
13-21	9420.9										9420.9	9420.9	9420.9	9420.9		
13-22	4539.2										4539.2	4539.2	4539.2	4539.2		
13-23	4906.1										4906.1	4906.1	4906.1	4906.1		
14-15	5653.6										5653.6	5653.6	5653.6	5653.6		
14-16	4031.4										4031.4	4031.4	4031.4	4031.4		
14-17	8711.7										8711.7	8711.7	8711.7	8711.7		
14-18	7872.1										7872.1	7872.1	7872.1	7872.1		
14-19	2774.4										2774.4	2774.4	2774.4	2774.4		
14-20	2540.1										2540.1	2540.1	2540.1	2540.1		
14-21	8108.1										8108.1	8108.1	8108.1	8108.1		
14-22	4592.9										4592.9	4592.9	4592.9	4592.9		
14-23	5730.7										5730.7	5730.7	5730.7	5730.7		
15-16	7222.6										7222.6	7222.6	7222.6	7222.6		
15-17	12320.3										12320.3	12320.3	12320.3	12320.3		
15-18	10294.2										10294.2	10294.2	10294.2	10294.2		
15-19	4446.3										4446.3	4446.3	4446.3	4446.3		
15-20	3449.7										3449.7	3449.7	3449.7	3449.7		
15-21	9353.2										9353.2	9353.2	9353.2	9353.2		
15-22	4354.9										4354.9	4354.9	4354.9	4354.9		
15-23	4552.0										4552.0	4552.0	4552.0	4552.0		
16-17	7632.5										7632.5	7632.5	7632.5	7632.5		
16-18	6143.1										6143.1	6143.1	6143.1	6143.1		
16-19	2799.3										2799.3	2799.3	2799.3	2799.3		
16-20	1889.9										1889.9	1889.9	1889.9	1889.9		
16-21	4927.0										4927.0	4927.0	4927.0	4927.0		
16-22	2458.7										2458.7	2458.7	2458.7	2458.7		
16-23	2939.5										2939.5	2939.5	2939.5	2939.5		
17-18	16578.1										16578.1	16578.1	16578.1	16578.1		
17-19	6479.2										6479.2	6479.2	6479.2	6479.2		
17-20	5334.5										5334.5	5334.5	5334.5	5334.5		
17-21	12111.1										12111.1	12111.1	12111.1	12111.1		
17-22	6733.4										6733.4	6733.4	6733.4	6733.4		
17-23	7184.5										7184.5	7184.5	7184.5	7184.5		
18-19	4341.5										4341.5	4341.5	4341.5	4341.5		
18-20	4099.7										4099.7	4099.7	4099.7	4099.7		
18-21	9461.8										9461.8	9461.8	9461.8	9461.8		
18-22	5779.5										5779.5	5779.5	5779.5	5779.5		
18-23	6104.9										6104.9	6104.9	6104.9	6104.9		
19-20	1742.9										1742.9	1742.9	1742.9	1742.9		
19-21	3584.9										3584.9	3584.9	3584.9	3584.9		
19-22	1953.9										1953.9	1953.9	1953.9	1953.9		
19-23	2307.3										2307.3	2307.3	2307.3	2307.3		
20-21	5983.0										5983.0	5983.0	5983.0	5983.0		
20-22	2524.4										2524.4	2524.4	2524.4	2524.4		
20-23	2306.0										2306.0	2306.0	2306.0	2306.0		
21-22	8655.7										8655.7	8655.7	8655.7	8655.7		
21-23	8352.1										8352.1	8352.1	8352.1	8352.1		
22-23	4704.2										4704.2	4704.2	4704.2	4704.2		
Total	2914262										2914262	2914262	2914262	2914262		

EXHIBIT 6.43: 23 NODE NETWORK ROUTING MATRIX (1990 TRAFFIC DATA)

Link	Route	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	Total
12-14	4302.5	1393.1	353.96	187.39	396.99	172.07	90.96	114.69	257.25	798.34	223.04	187.38	294.92	237.96	Miles
12-15	6024.8			6024.8											1671.75
12-16	3545.4														1528.72
12-17	8799.1							8799.1	8799.1						1817.42
12-18	7052.3														1630.22
12-19	2507.9														1554.39
12-20	6024.2														1515.53
12-21	9141.0									9141.0					198.19
12-22	4136.7									4136.7	4136.7	4136.7			996.53
12-23	3817.0														1406.95
13-14	5660.0														1295.82
13-15	4566.2														1393.10
13-16	4566.2														2645.68
13-17	2655.7														2246.69
13-18	6916.8														2074.62
13-19	7290.4														1983.66
13-20	1780.6														2189.31
13-21	2074.8														3263.04
13-22	4539.2														2602.05
13-23	4906.1														2466.39
14-15	5653.6														2244.95
14-16	4031.4														1252.58
14-17	8711.7														853.59
14-18	7872.1														681.52
14-19	2774.4														690.56
14-20	2540.1														796.21
14-21	8108.1														1869.94
14-22	4592.9														1557.19
14-23	5730.7														4592.9
15-16	7222.6														851.85
15-17	12320.3														398.99
15-18	10294.2														571.06
15-19	4446.3														662.02
15-20	3449.7														527.69
15-21	9353.2														1726.91
15-22	4354.9														1878.16
15-23	4552.0														1691.43
16-17	7632.5														1396.51
16-18	6143.1														172.07
16-19	2799.3														263.03
16-20	1889.9														286.76
16-21	4927.0														2000.48
16-22	2458.7														1702.86
16-23	2939.5														1292.44
17-18	16678.1														997.52
17-19	6479.2														90.96
17-20	5334.5														114.69
17-21	12111.1														1828.41
17-22	6733.4														1530.79
17-23	7184.5														1120.37
18-19	4341.5														825.45
18-20	4099.7														205.65
18-21	9461.8														1752.58
18-22	5779.5														1435.83
18-23	6104.9														1029.41
19-20	1742.9														734.49
19-21	3584.9														1713.72
19-22	1953.9														1645.48
19-23	2307.3														1235.06
20-21	5983.0														940.14
20-22	2524.4														798.34
20-23	2306.0														1208.76
21-22	8655.7														1503.68
21-23	8352.1														410.42
22-23	4704.2														705.34
Total	2914262	119028	262972	164218	110913	168547	671905	555821	550947	52671	290391	277828	279133	343080	

EXHIBIT 6.43 A: 23 NODE ROUTING MATRIX

Total Traffic = 2,914,262 Erlangs

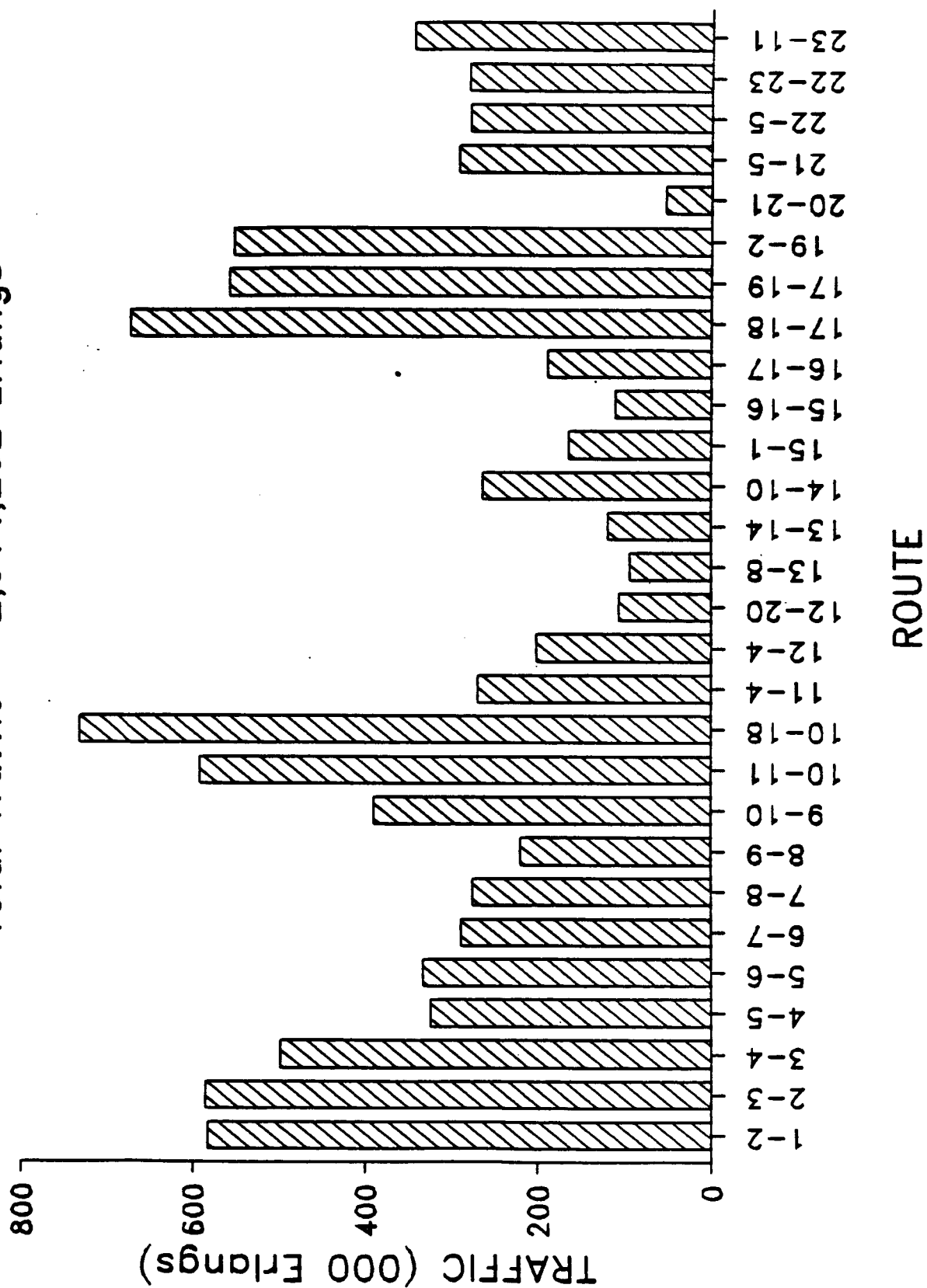


FIGURE 6.44: 1983 TRAFFIC, 48f FO CABLE

23 NODE NETWORK

Traffic Factor Mileage Factor	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
Actual Traffic	330572	332101	282548	183860	189145	163898	153376	124373	221366	335854	415659	152960	114429	60377	53152
UF Ccts Req'd	440763	442601	376731	245146	252194	218530	208502	165831	295155	47805	554212	203946	152572	90502	70870
Initial Fill	.8														
Total UF Circuits	550953	553501	470913	306433	315242	273163	260627	207288	368943	559756	692765	254933	190715	100628	88587
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	258.92	272.09	534.66	681.88	227.92	786.34
Circuit Miles(000)	52620	78608	293266	253494	321458	112533	104992	225323	369048	167322	188494	136302	130045	22935	69659
405 mbps DIGITAL FO SYSTEM															
25 mi Repeater Spacing															
First Cost (\$000)	13638	20332	71144	70878	87369	35297	23011	62090	90349	42686	46625	30540	38949	6509	22458
48f fiber FO Cable	923	1375	4813	4795	5910	2388	1557	4200	6112	2888	3154	2066	2635	440	1519
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456
F.O. Htr/Rcvr	3600	3600	3060	2016	2068	1800	1726	1368	2448	3636	4500	1592	1260	684	612
F.O. Line Repeater	4800	7200	28500	22848	28536	10200	9792	20564	35088	14544	16500	12408	11760	2280	6528
T/Rh Bldg, Power	900	1200	4050	5400	6450	2850	2850	6900	6750	2100	1950	3600	4500	1800	5100
M13 Mun	24600	24720	21030	13710	14100	12210	11640	9270	16500	24990	30930	11400	8520	4500	3960
GRAND TOTAL - FC	49924	60683	139461	132750	160606	71270	56958	121110	173950	95578	107969	70175	78425	19824	52632
\$ per mile (000)	523	426	224	160	158	173	141	111	155	320	397	131	115	87	67
\$/cct-mi	.95	.77	.48	.52	.50	.63	.54	.54	.45	.57	.57	.51	.50	.86	.76
Annual Cost (\$000)															
48f fiber FO Cable	5499	8197	28683	28575	35224	14230	9277	25032	36425	17209	18798	12312	15703	2624	9054
48f Ca Splicing	372	555	1940	1933	2363	963	628	1693	2464	1164	1272	833	1062	178	612
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Htr/Rcvr	2258	2258	1919	1265	1310	1129	1084	858	1536	2281	2823	1061	790	429	384
F.O. Line Repeater	3011	4516	15995	14331	17899	6398	6142	12585	22009	9123	10349	7783	7376	1430	4095
T/Rh Bldg, Power	360	479	1618	2157	2577	1138	1138	2756	2696	839	779	1438	1798	719	2037
M13 Mun	15430	15505	13191	8599	8844	7659	7301	5815	10349	15675	19401	7151	5344	2823	2484
GRAND TOTAL - AC	27539	32420	67323	62144	74748	34146	28142	55681	82213	48199	55158	33992	36428	9658	23688
\$ per mile (000)	288	228	108	75	73	83	70	51	78	161	203	64	53	42	30
\$/cct-mi	.52	.41	.23	.25	.23	.30	.27	.25	.21	.29	.29	.25	.28	.42	.34

1983 TRAFFIC, 48F FO CABLE

23 NODE NETWORK

FIGURE 6.44:

Traffic Factor Mileage Factor	Route	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	Total
.5675	Actual Traffic	67548	149236	93193	62943	107000	381306	315996	312662	29891	164797	157668	158408	194698	
1.15	WF Ccts Recd	90064	198982	124258	83924	142667	508408	421328	416883	39854	219729	210223	211210	259597	
	Initial Fill														
	Total WF Circuits	112581	248727	155322	104905	178334	635510	526660	521104	49818	274662	262779	264013	324496	8853359
	System Mileage	1602.07	407.06	215.50	488.84	197.88	104.60	131.89	295.84	918.09	256.80	216.49	339.16	273.65	13882.27
	Circuit Miles(000)	180361	101245	33472	48135	35289	68477	69463	154162	45737	70480	86626	89542	88800	3586058
405 Mbps DIGITAL FO SYSTEM															
25 mi Repeater Spacing															
	First Cost (\$000)	45755	23251	12309	13104	11303	14937	15068	33796	26221	21977	12309	19373	23447	934724
	48 fiber FO Cable	3095	1573	833	886	765	1010	1019	2286	1774	1487	833	1311	1586	63231
	48f Ca Splicing	25377	6448	3413	7266	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895
	Cable Installation	756	1656	1044	720	1188	6900	6912	3420	360	1800	1728	1728	2124	58212
	F.O. Hwtr/Reur	16380	9384	3132	4560	3168	6900	6912	13680	4440	6600	5184	8064	7788	324240
	F.O. Line Repeater	10050	2850	1450	3150	1500	1050	1200	2100	5850	1950	1650	2400	1950	93750
	T/Rm Bldg, Power	5040	11130	6960	4710	7980	28380	23520	23280	2250	12270	11760	11790	14490	395640
	M13 Hwtr	106453	56292	29341	34399	29075	59075	53264	83249	55437	50146	36877	50037	55719	2069693
	GRAND TOTAL - FC	66	138	136	75	147	555	404	281	60	196	171	148	204	151
	\$ per mile (000)	.59	.56	.88	.71	.82	.87	.77	.54	1.21	.71	.65	.56	.63	.58
	\$/cct-mi														
	Annual Cost (\$000)	18447	9374	4963	5283	4557	6022	6075	13625	10571	8860	4962	7810	9453	376846
	48 fiber FO Cable	1248	634	336	357	308	407	411	922	715	599	336	528	639	25493
	48f Ca Splicing	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	68654
	Cable Installation	474	1039	655	462	745	2597	2168	2145	226	1129	1084	1084	1332	36513
	F.O. Hwtr/Reur	10274	5886	1965	2860	1987	4328	4335	8881	2785	4140	3252	5058	4885	203376
	F.O. Line Repeater	4015	1138	659	1268	599	419	479	639	2337	779	659	959	779	37450
	T/Rm Bldg, Power	3161	6981	4366	2954	5005	17801	14753	14602	1411	7696	7376	7395	9089	248161
	M13 Hwtr	47850	27652	14319	16095	14466	32243	29063	42603	23908	24842	19045	25000	27925	1016492
	GRAND TOTAL - AC	30	68	66	35	73	308	220	144	26	97	88	74	102	73
	\$ per mile (000)	.27	.27	.43	.33	.41	.49	.42	.28	.52	.35	.34	.28	.31	.28
	\$/cct-mi														

FIGURE 6.45: 23 NODE NETWORK 1985 TRAFFIC, 48F FO CABLE

Traffic Factor 1.15		Route														
		1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
Actual Traffic		398434	400276	340551	221603	227974	197544	189478	149908	266810	404800	500988	184360	137920	72771	64064
VF Ccts Req'd		531245	533702	454066	295471	303966	263392	261304	199873	355746	539733	667984	245814	183893	97028	85419
Initial Fill		.8														
Total VF Circuits		664057	667127	567885	369339	379957	329240	314131	249842	444663	674666	834980	307267	229866	121286	106773
System Mileage		95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66	681.88	227.92	786.34
Circuit Miles(000)		63422	94987	353469	305532	387449	135635	126546	271079	468914	201671	227190	164283	156741	27643	83960
405 mbps DIGITAL FO SYSTEM																
25 mi Repeater Spacing																
First Cost (\$000)																
48 fiber FO Cable																
48F Ca Splicing																
Cable Installation																
F.O. Mtr/Rcvr																
F.O. Line Repeater																
T/Rx Bldg, Power																
M13 Mux																
GRAND TOTAL - FC																
\$ per mile (000)																
\$/cct-mi																
Annual Cost (\$000)																
48 fiber FO Cable																
48F Ca Splicing																
Cable Installation																
F.O. Mtr/Rcvr																
F.O. Line Repeater																
T/Rx Bldg, Power																
M13 Mux																
GRAND TOTAL - AC																
\$ per mile (000)																
\$/cct-mi																
565 mbps DIGITAL FO SYSTEM																
25 mi Repeater Spacing																
First Cost (\$000)																
48 fiber FO Cable																
48F Ca Splicing																
Cable Installation																
F.O. Mtr/Rcvr																
F.O. Line Repeater																
T/Rx Bldg, Power																
M13 Mux																
GRAND TOTAL - FC																
\$ per mile (000)																
\$/cct-mi																
Annual Cost (\$000)																
48 fiber FO Cable																
48F Ca Splicing																
Cable Installation																
F.O. Mtr/Rcvr																
F.O. Line Repeater																
T/Rx Bldg, Power																
M13 Mux																
GRAND TOTAL - AC																
\$ per mile (000)																
\$/cct-mi																

FIGURE 6.45: 23 NODE NETWORK

1985 TRAFFIC, 48F FO CABLE

Page 2 of 2

Route	25 mi Repeater Spacing											23-11	Total		
	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5				
Traffic Factor	.684														
Mileage Factor	1.15														
Actual Traffic	81415	179673	112325	75864	128966	459583	380865	376848	36027	198628	190035	190927	234666	234666	
W/F Dets Req'd	108553	239830	149766	101153	171955	612778	507820	502464	48036	264837	253379	254569	312889	312889	
Initial Fill															
Total W/F Circuits	135692	299788	187208	126441	214943	765972	634776	628079	60044	331046	316724	318211	391111	391111	10670033
System Mileage	1602.07	407.05	215.50	458.84	197.88	104.60	131.89	295.84	918.09	256.50	215.49	339.16	273.65	273.65	13882.27
Circuit Miles(000)	217387	122030	40343	58016	42533	80124	83723	185809	55126	84912	68250	107924	107029	107029	4322227
405 Mbps DIGITAL FO SYSTEM															
25 mi Repeater Spacing															
First Cost (\$000)	91510	34876	12309	13104	11303	17925	18834	42246	26221	21977	18463	29059	23447	23447	1118201
48 fiber FO Cable	6190	2359	833	886	765	1213	1274	2858	1774	1487	1249	1966	1586	1586	75643
48f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	4335	219895
Cable Installation	900	1980	1224	828	1404	4968	4104	4068	396	2160	2088	2088	2556	2556	69768
F.O. Rmtr/Rcvr	19500	11220	3672	5244	3744	8280	8208	16272	4884	7920	6264	9744	9372	9372	388212
F.O. Line Repeater	10050	2850	1650	3150	1500	1050	1200	2100	5850	1950	1650	2400	1950	1950	93750
T/Rm Bldg, Power	13410	8370	5670	9600	34200	28350	28350	28050	2700	14790	14160	14220	17490	17490	476760
M13 Rmtr	159587	73143	31471	36151	31450	69292	64060	100279	56367	54346	47287	64849	60735	60735	2442229
GRAND TOTAL - FC	100	180	146	79	159	662	486	339	61	212	219	191	222	222	176
\$ per mile (000)	.73	.60	.78	.62	.74	.86	.77	.54	1.02	.64	.69	.60	.57	.57	.57
\$/cct-mi															
365 Mbps DIGITAL FO SYSTEM															
25 mi Repeater Spacing															
First Cost (\$000)	45755	23251	12309	13104	11303	14937	15068	33796	26221	14651	12309	19373	23447	23447	1067031
48 fiber FO Cable	3095	1573	833	886	765	1010	1019	2286	1774	1487	1249	1966	1586	1586	75643
48f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	4335	219895
Cable Installation	298	1764	1092	756	1260	4326	3612	3570	378	1932	1848	1848	2268	2268	61364
F.O. Rmtr/Rcvr	17290	9996	3276	4788	3360	7210	7224	14280	4662	7084	5544	8624	8316	8316	341638
F.O. Line Repeater	10050	2850	1650	3150	1500	1050	1200	2100	5850	1950	1650	2400	1950	1950	93750
T/Rm Bldg, Power	6060	13410	8370	5670	9600	34200	28350	28050	2700	14790	14160	14220	17490	17490	476760
M13 Rmtr	108425	52922	30944	35623	30922	64391	58562	68769	56127	45461	39757	53148	59392	59392	2146315
GRAND TOTAL - FC	68	146	144	78	156	616	444	300	61	177	184	157	217	217	125
\$ per mile (000)	.50	.49	.77	.61	.73	.80	.70	.48	1.02	.54	.58	.49	.55	.55	.50
\$/cct-mi															
365 Mbps DIGITAL FO SYSTEM															
25 mi Repeater Spacing															
First Cost (\$000)	10447	9374	4963	5283	4567	6022	6075	13625	10571	5907	4962	7810	9453	9453	359436
48 fiber FO Cable	1248	634	336	357	308	407	411	922	715	400	336	528	639	639	24342
48f Ca Splicing	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	1748	88654
Cable Installation	501	1106	685	474	790	2714	2266	2239	237	1212	1159	1159	1423	1423	38890
F.O. Rmtr/Rcvr	10845	6270	2058	3003	2108	4523	4531	8957	2924	4443	3478	5409	5216	5216	214359
F.O. Line Repeater	4015	1138	659	1258	599	419	479	839	2337	779	659	959	779	779	37450
T/Rm Bldg, Power	3801	8411	5250	3556	6022	21452	17762	17594	1694	9277	8882	8919	10970	10970	294043
M13 Rmtr	49087	24534	15324	16863	15648	36205	32386	46066	24341	23656	20852	26351	30228	30228	1062102
GRAND TOTAL - AC	31	73	71	37	79	346	246	156	27	92	97	79	110	110	77
\$ per mile (000)	.23	.24	.38	.29	.37	.45	.39	.25	.44	.28	.31	.25	.28	.28	.25
\$/cct-mi															

1985 TRAFFIC, 96f FO CABLE

23 NODE NETWORK

FIGURE 6.46:

Traffic Factor
Mileage Factor.684
1.15

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
Actual Traffic	398434	400276	340551	221603	227974	197544	188478	149905	266810	404800	500988	184360	137920	72771	64064
VF Ccts Req'd	531245	533702	464068	295471	303966	263392	251304	199873	355746	538733	667384	246914	183893	97028	85419
Initial Fill	.8														
Total VF Circuits	664057	667127	567585	369339	379957	329240	314131	249842	444683	674666	834980	307267	229866	121266	106773
System Mileage	95.51	142.38	622.76	827.44	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66	181.88	227.92	786.34
Circuit Miles(000)	63422	94987	353469	305632	387449	135636	126546	271679	466914	201671	227190	164283	66741	27643	83960

405 Mbps DIGITAL FO SYSTEM

26 mi Repeater Spacing

First Cost (\$000)	15486	23086	100977	89421	110227	44532	43546	58750	113986	48468	58824	57794	36854	12319	42500
96 fiber FO Cable	1038	1547	5767	5993	7387	2984	2918	3937	7639	3248	3942	3873	2470	826	2848
96f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456
Cable Installation	4320	4356	3672	2448	2484	2160	2052	1556	2916	4392	5436	2016	1548	828	720
F.O. Mtr/Rcur	5760	8712	30600	27744	33948	12240	11628	24288	41796	17568	19932	14784	14448	2760	7800
F.O. Line Repeater	900	1200	4060	5400	6450	2850	2850	6900	6750	2100	1950	3600	4500	1800	5100
T/Rm Bldng. Power	29870	29790	25350	16500	16980	14700	14040	11160	19850	30120	37290	13740	10290	5430	4770
M13 Mux	58887	70947	181280	160609	193628	86992	83415	123910	209650	110631	131584	104276	60911	27572	76074
GRAND TOTAL - FC	614	496	291	194	190	209	207	114	199	370	484	195	119	121	97
\$ per mile (000)	.93	.75	.61	.53	.50	.63	.66	.46	.45	.55	.58	.63	.52	1.00	.91
\$/cct-mi															

Annual Cost (\$000)

96 fiber FO Cable	6243	9309	40710	36051	44440	17954	17556	23686	45955	19541	23716	23301	14858	4966	17134
96f Ca Splicing	418	624	2728	2416	2978	1203	1177	1587	3080	1309	1589	1561	996	333	1148
Cable Installation	510	909	3977	5293	6512	2531	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Mtr/Rcur	2710	2732	2303	1535	1558	1355	1287	1039	1829	2765	3410	1265	971	519	452
F.O. Line Repeater	3513	5465	19194	17402	21254	7677	7294	15234	26216	11019	12502	9273	9062	1731	4817
T/Rm Bldng. Power	360	479	1618	2157	2577	1138	1138	2756	2696	839	779	1438	1798	719	2037
M13 Mux	18510	18685	15901	10349	10651	9220	8806	7000	12457	18892	23390	8618	6454	3406	2992
GRAND TOTAL - AC	32564	38202	86430	75194	90008	41179	39831	58244	98967	56264	67123	48870	38494	13130	33602
\$ per mile (000)	.341	.268	.139	.91	.88	.100	.99	.54	.94	.188	.247	.91	.56	.58	.43
\$/cct-mi	.51	.40	.24	.25	.23	.30	.31	.21	.21	.28	.30	.30	.25	.47	.40

565 Mbps DIGITAL FO SYSTEM

26 mi Repeater Spacing

First Cost (\$000)	10324	15391	67318	89421	110227	22266	21773	58750	113986	32312	44118	28897	36854	12319	42500
96 fiber FO Cable	592	1031	4511	5993	7387	1492	1459	3937	7639	2165	2967	1937	2470	826	2848
96f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456
Cable Installation	3760	3780	3234	2100	2184	1890	1806	1428	2562	3822	4746	1806	1344	756	672
F.O. Mtr/Rcur	5040	7560	26951	23801	29849	10710	10234	20945	36723	16288	17402	13244	12544	2520	7168
F.O. Line Repeater	900	1200	4050	5400	6450	2850	2850	6900	6750	2100	1950	3600	4500	1800	5100
T/Rm Bldng. Power	29870	29790	25350	16500	16980	14700	14040	11160	19850	30120	37290	13740	10290	5430	4770
M13 Mux	51319	61008	141278	155318	189229	60434	58543	120338	204223	90543	112773	71693	78903	27260	75514
GRAND TOTAL - FC	544	428	227	189	186	147	145	111	194	303	414	134	116	120	96
\$ per mile (000)	.82	.64	.40	.51	.49	.45	.46	.44	.44	.45	.50	.44	.50	.99	.90
\$/cct-mi															

Annual Cost (\$000)

96 fiber FO Cable	4162	6205	27140	36051	44440	8977	8778	23686	45955	19027	17787	11650	14858	4966	17134
96f Ca Splicing	279	415	1819	2416	2978	1502	1459	1587	3080	873	1192	781	996	333	1148
Cable Installation	510	909	3977	5293	6512	2531	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Mtr/Rcur	2371	2371	2029	1317	1370	1186	1133	896	1607	2397	2977	1133	843	474	422
F.O. Line Repeater	3161	4742	16905	14929	18722	6718	6419	13137	23034	9590	10916	8307	7868	1561	4496
T/Rm Bldng. Power	360	479	1618	2157	2577	1138	1138	2756	2696	839	779	1438	1798	719	2037
M13 Mux	18510	18685	15901	10349	10651	9220	8806	7000	12457	18892	23390	8618	6454	3406	2992
GRAND TOTAL - AC	29553	33808	69387	72503	87249	30472	29436	56004	95563	47527	58777	35342	37172	12935	33251
\$ per mile (000)	.309	.237	.111	.88	.86	.74	.73	.52	.91	.159	.216	.66	.55	.57	.42
\$/cct-mi	.47	.36	.20	.24	.23	.22	.23	.21	.20	.24	.26	.22	.24	.47	.40

FIGURE 6.46: 1985 TRAFFIC, 96f FO CABLE

23 NODE NETWORK

Traffic Factor
Mileage Factor

.84
1.15

Route	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	Total
Actual Traffic	81415	179873	112325	75854	128926	459583	380865	376848	36027	198628	190035	190927	234666	
VF Ccts Req'd	108552	239830	149766	101153	171955	612778	507820	502464	48036	264837	253379	254569	312889	
Initial Fill														
Total VF Circuits	136592	299788	187208	126441	214943	765372	634776	628079	60044	331046	316724	318211	391111	10670833
System Mileage	1602.07	407.05	215.50	458.94	197.88	104.60	131.89	296.84	918.09	256.50	215.49	339.16	273.65	13862.27
Circuit Miles (000)	217387	122030	40343	58016	42633	80124	83723	185809	55126	84912	68250	107924	107029	4322227

405 Mbps DIGITAL FO SYSTEM														
25 mi Repeater Spacing														
First Cost (\$000)	44001	11647	24799	10695	16361	21386	47968	27726	49621	27726	23293	36662	29581	1287700
96 fiber FO Cable	86588	2949	761	1682	717	1433	3215	1858	3325	1858	1561	2457	1982	86395
96f Ca Splicing	5803	3413	7258	3134	1657	2089	4686	4063	14543	4063	3413	5372	4335	219895
Cable Installation	26377	1980	1224	828	4968	4104	4068	2160	396	2160	2088	2088	2556	69768
F.O. Mtr/Rcvr	900	11220	5244	3744	8280	8208	16272	7920	4884	7920	6264	9744	9372	388212
F.O. Line Repeater	19500	11220	5244	3744	8280	8208	16272	7920	4884	7920	6264	9744	9372	388212
T/RM Bldg, Power	10050	2850	1650	3150	1500	1050	2100	1950	5850	1950	1650	2400	1950	93750
M13 Num	6060	13410	8370	5670	9600	34200	28350	28050	2700	14790	14160	14220	17490	476760
GRAND TOTAL - FC	154278	30757	48621	30794	62552	66770	106359	60467	81319	60467	52430	72943	67266	2622379
\$ per mile (000)	96	204	143	106	156	506	360	243	89	236	243	216	246	169
\$/cct-mi	.71	.68	.76	.84	.72	.85	.57	.71	1.48	.71	.77	.68	.63	.61
Annual Cost (\$000)	34909	17740	4696	9998	4312	6838	19339	11178	20005	11178	9391	14781	11926	519153
96 fiber FO Cable	2339	1189	315	670	289	578	1296	749	1341	749	629	991	799	34791
96f Ca Splicing	10231	2593	1376	2930	1264	1588	4686	1858	5863	1858	1376	2166	1748	88554
Cable Installation	565	1242	768	519	881	3116	2574	2552	248	1355	1310	1310	1603	43761
F.O. Mtr/Rcvr	12231	7038	3289	2348	5194	5148	10206	4968	3063	4968	3929	6112	5878	243502
F.O. Line Repeater	4015	1138	1258	599	419	479	839	779	2337	779	659	959	779	37450
T/RM Bldg, Power	3801	8411	5250	3556	6022	21452	17594	9277	1694	9277	8862	8919	10570	299043
M13 Num	68091	39357	15367	22222	15714	38145	53715	29944	34551	29944	26176	36237	33704	1266353
GRAND TOTAL - AC	43	97	71	48	79	365	182	117	38	117	121	104	123	91
\$ per mile (000)	.31	.32	.38	.36	.37	.48	.29	.36	.63	.36	.38	.33	.31	.29
\$/cct-mi														118.67

565 Mbps DIGITAL FO SYSTEM														
25 mi Repeater Spacing														
First Cost (\$000)	22000	11647	24799	10695	16361	21386	47968	27726	49621	27726	23293	36662	29581	1048426
96 fiber FO Cable	86588	2949	761	1682	717	1433	3215	1858	3325	1858	1561	2457	1982	70260
96f Ca Splicing	5803	3413	7258	3134	1657	2089	4686	4063	14543	4063	3413	5372	4335	219895
Cable Installation	25377	1764	1092	756	4326	3612	3570	1932	378	1932	1848	1848	2268	61364
F.O. Mtr/Rcvr	798	1764	4798	3360	7210	7224	14280	7084	4662	7084	6544	8624	8316	341838
F.O. Line Repeater	17290	9996	3150	1500	1050	1200	2100	1950	5850	1950	1650	2400	1950	93750
T/RM Bldg, Power	10050	2850	1650	3150	1500	1050	2100	1950	5850	1950	1650	2400	1950	93750
M13 Num	6060	13410	8370	5670	9600	34200	28350	28050	2700	14790	14160	14220	17490	476760
GRAND TOTAL - FC	151966	30229	48093	30266	66541	67688	106808	60467	81079	60467	52430	72943	67266	2312093
\$ per mile (000)	95	142	105	153	183	437	293	174	88	174	181	153	241	167
\$/cct-mi	.70	.47	.83	.71	.83	.69	.47	.63	1.47	.63	.57	.48	.62	.53
Annual Cost (\$000)	34909	17740	4696	9998	4312	6838	19339	11178	20005	11178	9391	14781	11926	519153
96 fiber FO Cable	2339	1189	315	670	289	578	1296	749	1341	749	629	991	799	34791
96f Ca Splicing	10231	2593	1376	2930	1264	1588	4686	1858	5863	1858	1376	2166	1748	88554
Cable Installation	501	1106	686	474	790	2866	2239	1212	237	1212	1159	1159	1423	38490
F.O. Mtr/Rcvr	10845	6270	2055	3003	2108	4531	8957	4433	2924	4433	3478	5409	5216	214289
F.O. Line Repeater	4015	1138	1258	599	419	479	839	779	2337	779	659	959	779	37450
T/RM Bldg, Power	3801	8411	5250	3556	6022	21452	17594	9277	1694	9277	8862	8919	10570	299043
M13 Num	66541	28990	15036	21891	15383	37071	45275	23313	34401	23313	20564	26498	32861	1128338
GRAND TOTAL - AC	42	71	70	48	78	364	153	91	95	91	95	78	120	81
\$ per mile (000)	.31	.24	.37	.38	.36	.46	.24	.38	.62	.38	.30	.25	.31	.26
\$/cct-mi														105.80

1990 TRAFFIC, 48F FO CABLE

23 NODE NETWORK

FIGURE 6.47:

Traffic Factor Mileage Factor	Route											
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4
Actual Traffic	654057	667127	567885	369339	379957	329240	314131	249842	444683	674666	834980	259866
VF Ccts Req'd	889409	889203	756780	492452	506610	438986	418841	333122	592910	899555	1113306	409689
Initial Fill	-8											
Total VF Circuits	1106761	1111878	945975	615565	633262	548733	523551	416403	741138	1124444	1391633	512112
System Mileage	95.61	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66
Circuit Miles (000)	105704	158311	589115	509221	645748	226058	210910	452631	791524	336118	378649	273805

810 Mbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

First Cost (\$000)	8183	12199	38572	47252	58246	23531	11505	31045	60233	25611	23313	15270
48 fiber FO Cable	554	825	2406	3136	3940	1592	778	2100	4075	1733	1577	1317
48f Ca Splicing	1513	2255	9665	13103	16152	6526	6381	17218	16703	4735	4310	10801
Cable Installation	3150	3150	2772	1827	1890	1575	1512	1260	2142	3213	3969	1512
F.O. Intr/Recr	2100	3150	12012	10353	13230	4725	4536	9240	15708	6426	7938	5544
F.O. Line Repeater	600	750	3250	2850	3450	1650	1650	3600	3600	1200	1200	1950
T/Rh Bldg, Power	86468	86888	73920	48143	49508	42893	40950	32550	57908	87885	108728	29978
M13 Mun	102567	109217	138797	126724	146416	82491	67313	97013	160368	130803	151034	73835
GRAND TOTAL - FC	1074	767	223	153	144	200	167	89	152	438	555	138
\$ per mile (000)	.97	.69	.24	.25	.23	.36	.32	.21	.21	.39	.40	.27
\$/cct-mi												

Annual Cost (\$000)	3299	4918	14341	19050	23483	9487	4638	12516	24284	10326	9399	7851
48 fiber FO Cable	223	333	970	1289	1589	642	314	847	1643	698	636	416
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	4355
Cable Installation	1976	1976	1739	1146	1185	988	948	790	1344	2015	2490	948
F.O. Intr/Recr	1317	1976	7534	6494	8298	2964	2845	5796	9853	4031	4979	3477
F.O. Line Repeater	240	300	899	1138	1378	659	659	1438	1438	479	479	779
T/Rh Bldg, Power	54236	54499	46366	30197	31053	26904	25685	20417	36322	55125	68198	25126
M13 Mun	61901	64911	75826	64937	73498	44274	37663	48745	81617	74583	87918	40317
GRAND TOTAL - AC	648	456	122	78	72	107	93	45	77	250	323	75
\$ per mile (000)	.59	.41	.13	.13	.11	.20	.18	.11	.10	.22	.23	.15
\$/cct-mi												

1.7 Gbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

First Cost (\$000)	5455	8133	17786	23626	29123	11766	11505	31045	30116	17074	15542	15270
48 fiber FO Cable	369	550	1203	1598	1970	796	778	2100	2037	1155	1051	1033
48f Ca Splicing	1513	2255	9665	13103	16152	6526	6381	17218	16703	4735	4310	10801
Cable Installation	3150	3150	2772	1890	2016	1638	1512	1260	2268	3276	4032	1512
F.O. Intr/Recr	2100	3150	12012	10710	14112	4914	4536	9240	16632	6552	8064	5544
F.O. Line Repeater	600	750	3250	2850	3450	1650	1650	3600	3600	1200	1200	1950
T/Rh Bldg, Power	86468	86888	73920	48143	49508	42893	40950	32550	57908	87885	108728	29978
M13 Mun	99658	104876	119608	101920	116331	70182	67313	97013	129264	121877	142927	73835
GRAND TOTAL - FC	1043	737	192	123	114	170	167	89	123	408	525	138
\$ per mile (000)	.94	.66	.20	.20	.18	.31	.32	.21	.17	.36	.38	.27
\$/cct-mi												

Annual Cost (\$000)	2199	3279	7171	9525	11741	4743	4638	12516	12142	6884	6266	6156
48 fiber FO Cable	149	222	485	644	794	321	314	847	821	466	424	416
48f Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	4355
Cable Installation	1976	1976	1739	1185	1265	1027	948	790	1423	2055	2529	948
F.O. Intr/Recr	1317	1976	7534	6418	8852	3082	2845	5796	10452	4110	5068	3477
F.O. Line Repeater	240	300	899	1138	1378	659	659	1438	1438	479	479	779
T/Rh Bldg, Power	54236	54499	46366	30197	31053	26904	25685	20417	36322	55125	68198	25126
M13 Mun	60727	63160	68170	54691	61595	39368	37663	48745	69312	71027	84692	40317
GRAND TOTAL - AC	636	444	109	66	60	96	93	45	66	238	311	75
\$ per mile (000)	.57	.40	.12	.11	.10	.17	.18	.11	.09	.21	.22	.15
\$/cct-mi												

FIGURE 6.47: 23 NODE NETWORK 1990 TRAFFIC, 48+ FO CABLE

Traffic Factor Mileage Factor	23 NODE NETWORK															
	1.14	1.15	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	Total
Route																
Actual Traffic	135692	299788	187208	126441	214943	765972	634776	628079	60044	331046	316724	318211	391111			
W/Cts Reqd	180922	399717	249611	168588	285591	1021296	846367	837439	80059	441395	422299	424282	521481			
Initial Fill	226153	499646	312013	210735	358239	1276620	1057959	1046799	100074	551744	527874	530352	651851	17784722		
Total W/Cts	1602.07	407.05	215.50	458.84	197.88	104.60	131.89	295.84	918.09	256.50	215.49	339.16	273.65	13682.27		
System Mileage	362312	203363	67236	96693	70869	133540	139536	309682	91877	141520	113750	179873	178382	7203711		
Circuit Miles(000)																
810 Mbps DIGITAL FO SYSTEM																
50 mi Repeater Spacing																
First Cost (\$0000)	45755	11625	6155	13104	5651	8962	7634	16896	26221	14651	6154	9686	15631	588431		
48 fiber FO Cable	3095	786	416	886	382	606	510	1143	1774	991	416	655	1057	39806		
48f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895		
Cable Installation	693	1449	945	630	1071	3654	3024	3024	378	1575	1512	1512	1890	51660		
F.O. Rmtr./Rcvr	7623	4347	1575	2100	1428	3654	3024	6048	2394	3150	2520	3528	3780	149499		
F.O. Line Repeater	5250	1650	1050	1800	900	750	750	1200	3150	1200	1050	1350	1200	52200		
T/RM Bldg, Power	17693	39060	24413	16485	28035	99750	82688	81795	7823	43155	41265	41475	50978	1390200		
M13 Run	105485	65366	37967	42274	40602	119034	99618	114794	56281	68785	56331	63579	78871	2491591		
GRAND TOTAL - FC	66	161	176	92	205	1138	755	388	61	268	261	187	288	179		
\$ per mile (000)	.29	.32	.56	.44	.57	.89	.71	.37	.61	.49	.50	.35	.44	.35		
\$/cct-mi																
Annual Cost (\$0000)																
48 fiber FO Cable	18447	4687	2481	5283	2278	3613	3037	6813	10571	5907	2481	3905	6302	237234		
48f Ca Splicing	1248	317	168	357	154	244	205	461	715	400	168	264	426	16148		
Cable Installation	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	88454		
F.O. Rmtr./Rcvr	435	909	593	395	672	2292	1897	1897	237	988	948	948	1185	32403		
F.O. Line Repeater	4781	2727	988	1317	896	2292	1897	3794	1502	1976	1581	2213	2371	93772		
T/RM Bldg, Power	2097	659	419	719	360	300	300	479	1258	479	419	539	479	20052		
M13 Run	11097	24800	15312	10340	17685	62567	51865	51305	4907	27069	25883	26015	31975	871989		
GRAND TOTAL - RC	48336	36398	21336	21342	23208	71976	60043	66638	25053	38456	32857	36051	44487	1360951		
\$ per mile (000)	30	89	99	47	117	688	455	225	27	150	152	106	163	98		
\$/cct-mi	.13	.16	.32	.22	.33	.54	.43	.22	.27	.27	.29	.20	.25	.19		
1.7 Gbps DIGITAL FO SYSTEM																
50 mi Repeater Spacing																
First Cost (\$0000)	45755	11625	6155	13104	5651	8962	7634	16896	26221	14651	6154	9686	15631	588431		
48 fiber FO Cable	3095	786	416	886	382	606	510	1143	1774	991	416	655	1057	39806		
48f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895		
Cable Installation	766	1512	1008	756	1134	3780	3024	3024	504	1638	1512	1512	1890	51660		
F.O. Rmtr./Rcvr	8316	4836	1680	2520	1512	3780	3024	6048	3192	3276	2520	3528	4032	155442		
F.O. Line Repeater	5250	1650	1050	1800	900	750	750	1200	3150	1200	1050	1350	1200	52200		
T/RM Bldg, Power	17693	39060	24413	16485	28035	99750	82688	81795	7823	43155	41265	41475	50978	1390200		
M13 Run	106241	65618	38135	42820	40249	116036	95596	105774	57205	61153	56331	63579	70904	2322062		
GRAND TOTAL - FC	66	161	177	93	206	1110	725	358	62	238	261	187	259	167		
\$ per mile (000)	.29	.32	.57	.44	.57	.87	.69	.34	.62	.43	.50	.35	.40	.32		
\$/cct-mi																
Annual Cost (\$0000)																
48 fiber FO Cable	18447	4687	2481	5283	2278	3613	3037	6813	10571	5907	2481	3905	6302	237234		
48f Ca Splicing	1248	317	168	357	154	244	205	461	715	400	168	264	426	16148		
Cable Installation	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	88454		
F.O. Rmtr./Rcvr	474	948	632	474	711	2371	1897	1897	237	988	948	948	1185	32403		
F.O. Line Repeater	5216	2845	1054	1581	948	2371	1897	3794	2002	2055	1581	2213	2371	93772		
T/RM Bldg, Power	2097	659	419	719	360	300	300	479	1258	479	419	539	479	20052		
M13 Run	11097	24800	15312	10340	17685	62567	51865	51305	4907	27069	25883	26015	31975	871989		
GRAND TOTAL - RC	48336	36398	21443	21685	23300	70849	58422	63001	25633	35421	32857	36051	41360	1294233		
\$ per mile (000)	30	90	100	47	118	677	443	213	28	136	152	106	151	93		
\$/cct-mi	.13	.16	.32	.22	.33	.53	.42	.20	.28	.25	.29	.20	.23	.16		

FIGURE 6.4B: 23 NODE NETWORK 1990 TRAFFIC, 96F FO CABLE

Traffic Factor
Mileage Factor

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
Actual Traffic	664057	667127	567585	369339	379957	329240	314131	249842	444663	674666	834980	307267	229866	121286	106773
VF Ccts Req'd	885409	889503	756780	492452	506610	438986	418841	333122	592910	899555	1113306	409689	306488	161714	142364
Initial Fill	8														
Total VF Circuits	1106761	1111878	945975	615565	633262	548733	523551	416403	741138	1124444	1391633	512112	383110	202143	177955
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66	681.88	227.92	786.34
Circuit Miles (000)	105704	158311	589115	509221	645748	226058	210910	452631	781524	336118	378649	273805	261235	46072	139933
810 Mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing															
First Cost (\$000)	10324	15391	33659	44711	55114	22266	21773	58750	56993	32312	29412	28997	36854	12319	42500
96 fiber FO Cable	692	1031	2256	2936	3693	1492	1459	3937	3819	2165	1971	1937	2470	826	2848
96F Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456
Cable Installation	3150	3150	2772	1827	1890	1575	1512	1260	2142	3213	2969	1512	1134	630	567
F.O. Mtr/Rcvr	2100	3150	12012	10353	13230	4725	4536	9240	15708	6426	7938	8544	5292	1050	3024
F.O. Line Repeater	600	750	3250	2850	3450	1650	1650	3600	3600	1200	1200	1950	2400	1050	2700
T/Rm Bldg, Power	86468	86888	73920	48143	49508	42893	40950	32550	57908	87885	108728	40058	29978	15803	13913
M13 Mux	104846	112615	136733	123983	143037	81126	78261	126556	156873	137936	157527	88366	88929	35287	79007
GRAND TOTAL - FC	1098	791	220	150	140	197	194	116	149	461	579	165	130	155	99
\$ per mile (000)	.99	.71	.23	.24	.22	.36	.37	.28	.20	.41	.42	.32	.34	.77	.56
\$/cct-mi															
Annual Cost (\$000)	4162	6205	13570	18026	22220	8977	8778	23686	22978	13027	11858	11550	14858	4966	17134
96 fiber FO Cable	279	416	909	1208	1489	602	588	1587	1540	873	795	781	996	333	1148
96F Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
Cable Installation	1976	1976	1739	1146	1185	988	948	790	1344	2015	2490	948	711	395	356
F.O. Mtr/Rcvr	1317	1976	7534	6494	8295	2984	2845	5796	9853	4031	4779	3477	3319	659	1897
F.O. Line Repeater	240	300	699	1138	1378	659	659	1438	1438	479	479	779	959	419	1079
T/Rm Bldg, Power	54236	54499	46366	30197	31053	26904	25685	20417	36322	55125	68198	25126	18803	9912	8726
M13 Mux	62820	66281	74994	63492	72136	43724	42077	60656	80208	77459	90536	46176	44001	18140	35362
GRAND TOTAL - AC	658	466	120	77	71	106	104	56	76	269	333	86	65	80	45
\$ per mile (000)	.59	.42	.13	.12	.11	.19	.20	.13	.10	.23	.24	.17	.17	.39	.25
\$/cct-mi															
1.7 Gbps DIGITAL FO SYSTEM 50 mi Repeater Spacing															
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	16156	14706	28997	36854	12319	42500
96 fiber FO Cable	346	516	2256	2936	3693	1492	1459	3937	3819	1083	986	1937	2470	826	2848
96F Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456
Cable Installation	3150	3150	2772	1890	1890	1638	1512	1260	2268	3276	4032	1512	1134	756	630
F.O. Mtr/Rcvr	2100	3150	12012	10710	14112	4914	4536	9240	16632	6552	8064	9544	5292	1260	3360
F.O. Line Repeater	600	750	3250	2850	3450	1650	1650	3600	3600	1200	1200	1950	2400	1050	2700
T/Rm Bldg, Power	86468	86888	73920	48143	49508	42893	40950	32550	57908	87885	108728	40058	29978	15803	13913
M13 Mux	99338	104404	136733	124403	144045	81378	78261	126556	157923	120887	142025	88366	88929	35287	79406
GRAND TOTAL - FC	1040	733	220	150	141	198	194	116	150	404	522	165	130	156	100
\$ per mile (000)	.94	.66	.23	.24	.22	.36	.37	.28	.20	.36	.38	.32	.34	.77	.56
\$/cct-mi															
Annual Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	6514	5929	11550	14858	4966	17134
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	436	397	781	996	333	1148
96F Ca Splicing	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
Cable Installation	1976	1976	1739	1185	1285	1027	948	790	1423	2055	2529	948	711	474	395
F.O. Mtr/Rcvr	1317	1976	7534	6718	8852	3082	2845	5796	10432	4110	5058	3477	3319	790	2108
F.O. Line Repeater	240	300	699	1138	1378	659	659	1438	1438	479	479	779	959	419	1079
T/Rm Bldg, Power	54236	54499	46366	30197	31053	26904	25685	20417	36322	55125	68198	25126	18803	9912	8726
M13 Mux	60599	62970	74994	63755	72768	43882	42077	60656	80666	70628	84328	46176	44001	18351	35612
GRAND TOTAL - AC	634	442	120	77	71	107	104	56	77	236	310	86	65	81	45
\$ per mile (000)	.57	.40	.13	.13	.11	.19	.20	.13	.10	.21	.22	.17	.17	.40	.25
\$/cct-mi															

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1990 TRAFFIC, 96% FO CABLE

2.3. NODE NETWORK

Traffic Factor Mileage Factor	1.14 1.15	Route													
		13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	Total
Actual Traffic	135692	299788	187208	126441	214943	765972	634776	628079	80044	331046	316724	318211	391111		
OF Cts Req	180922	399717	249611	168588	286591	1021296	846367	837439	80059	441395	422299	424282	521481		
Initial Fill	226183	499646	312013	210735	358239	1226620	1057959	1046799	100074	551744	527874	530352	651651	17784722	
Total OF Circuits	1602.07	407.05	216.50	458.84	197.88	104.60	131.89	295.84	918.09	256.50	215.49	273.65	13882.27		
System Mileage	362312	203383	67238	96693	70889	133540	139538	309682	113780	141620	113780	179873	178382	7203711	
Circuit Miles(000)															
810 Mbps DIGITAL FO SYSTEM															
50 mi Repeater Spacing															
First Cost (\$000)	86588	22000	11647	24799	10695	11307	7129	15989	49621	13863	11647	18331	14790	799682	
96 fiber FO Cable	5803	1474	781	1662	717	758	478	1072	3325	929	780	1228	991	53590	
96f Ca Splicing	25377	6448	3413	7268	3134	1557	2089	4686	14543	4063	3413	5372	4335	219895	
Cable Installation	593	1449	945	630	1071	3654	3024	3024	378	1575	1512	1512	1890	51660	
F.O. Mtr/Repr	7623	4347	1575	2100	1428	3654	3024	6048	2394	3150	2520	3528	3780	149499	
T/Rd Bldg, Power	5250	1650	1050	1800	900	750	750	1200	3150	1200	1050	1350	1200	52200	
M13 Num	17693	39060	24413	16485	28035	99750	82688	81795	7823	43155	41265	41475	50978	1390300	
GRAND TOTAL - FC	149026	76429	43824	54744	45980	121530	99181	113814	81233	67935	62187	72797	77964	2716726	
\$ per mile (000)	93	188	203	119	232	1162	752	385	88	265	289	215	285	196	
\$/cct-mi	.41	.38	.65	.57	.65	.91	.71	.37	.68	.48	.55	.40	.44	.38	
Annual Cost (\$000)	34909	8870	4696	9998	4312	4559	2874	6446	20005	5589	4695	7390	5963	322402	
96 fiber FO Cable	2339	594	315	670	289	305	193	432	1341	375	315	495	400	21606	
96f Ca Splicing	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	88654	
Cable Installation	435	909	593	395	672	2392	1897	1897	237	988	948	948	1185	32403	
F.O. Mtr/Repr	4781	2727	988	1317	896	2392	1897	3794	1502	1976	1581	2213	2371	93722	
T/Rd Bldg, Power	2097	659	419	719	360	300	300	479	1258	479	419	539	479	20852	
M13 Num	11097	24500	15312	10340	17585	62567	51865	51305	4907	27069	26883	26015	31975	871989	
GRAND TOTAL - RC	65890	40858	23699	26370	25376	72383	59867	66242	35113	38113	35218	39767	44121	1451677	
\$ per mile (000)	41	100	110	57	128	698	454	224	38	149	163	117	161	105	
\$/cct-mi	.18	.20	.35	.27	.56	.55	.43	.21	.38	.27	.31	.22	.25	.20	
1.17 Gbps DIGITAL FO SYSTEM															
50 mi Repeater Spacing															
First Cost (\$000)	86588	22000	11647	24799	10695	5654	7129	15989	49621	13863	11647	18331	14790	750309	
96 fiber FO Cable	5803	1474	781	1662	717	379	478	1072	3325	929	780	1228	991	50382	
96f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895	
Cable Installation	756	1512	1008	756	1134	3780	3024	3024	504	1638	2016	2016	2016	53122	
F.O. Mtr/Repr	8316	4536	1680	2520	1512	3780	3024	6048	3192	3276	2520	3528	4032	159143	
T/Rd Bldg, Power	5250	1650	1050	1800	900	750	750	1200	3150	1200	1050	1350	1200	52200	
M13 Num	17693	39060	24413	16485	28035	99750	82688	81795	7823	43155	41265	41475	50978	1390300	
GRAND TOTAL - FC	149782	76681	43992	55290	46127	115749	99181	113814	82157	68134	62187	72797	78342	2671900	
\$ per mile (000)	93	188	204	121	233	1107	752	385	89	266	289	215	286	192	
\$/cct-mi	.41	.38	.65	.57	.65	.87	.71	.37	.69	.48	.55	.40	.44	.37	
Annual Cost (\$000)	34909	8870	4696	9998	4312	2279	2874	6446	20005	5589	4695	7390	5963	302197	
96 fiber FO Cable	2339	594	315	670	289	153	193	432	1341	375	315	495	400	20122	
96f Ca Splicing	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	88654	
Cable Installation	474	948	632	474	711	2371	1897	1897	316	1027	948	948	1265	33361	
F.O. Mtr/Repr	5216	2845	1054	1581	948	2371	1897	3794	2002	2055	1581	2213	2529	92499	
T/Rd Bldg, Power	2097	659	419	719	360	300	300	479	1258	479	419	539	479	20852	
M13 Num	11097	24500	15312	10340	17585	62567	51865	51305	4907	27069	26883	26015	31975	871989	
GRAND TOTAL - RC	66365	41016	23805	26712	25468	70709	59867	66242	35632	38232	35218	39767	44358	1435114	
\$ per mile (000)	41	101	110	58	129	676	454	224	39	149	163	117	162	103	
\$/cct-mi	.18	.20	.35	.28	.56	.53	.43	.21	.39	.27	.31	.22	.25	.20	

FIGURE 6.49: 23 NODE NETWORK

1995 TRAFFIC, 48f FO CABLE

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Traffic Factor 1.955
Mileage Factor 1.15

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
Actual Traffic	1138799	1144064	973359	633384	651593	564617	538706	428457	763592	1166994	1431917	526936	394200	207994	183107
VF Ccts Req'd	1518399	1525419	1297812	844512	868791	752823	718275	571276	1016769	1542658	1909223	702581	525600	277325	244142
Initial Fill	8														
Total VF Circuits	1897998	1906774	1622265	1055640	1085989	941029	897844	714095	1270966	1928323	2386528	876227	657000	346657	305178
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66	681.88	227.92	786.34
Circuit Miles(000)	161273	271489	1010281	873269	1107401	387670	361692	776223	1340245	576413	649350	469551	447996	79009	239372
1.7 Gbps DIGITAL FO SYSTEM															
100 mi Repeater Spacing															
First Cost (\$000)	5485	8133	35572	23626	58246	11766	11505	31045	60233	17074	23313	15270	19475	6509	22458
48f fiber FO Cable	369	550	2406	1598	3940	796	778	2100	4075	1155	1577	1033	1317	440	1519
Cable Installation	1513	2255	9665	13103	16152	6526	6361	17218	16703	4735	4310	8469	10801	3610	12456
F.O. Mtr/Rcur	5544	5544	4662	3024	3150	2772	2646	2142	3780	5544	6930	2646	2016	1134	1008
F.O. Line Repeater	1848	3696	10878	9072	11550	4620	4410	7854	13860	5544	6930	5292	4704	1134	2688
T/RM Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500
M13 Mux	148313	148995	126788	82478	84893	73553	70193	55808	99330	150675	186480	68618	51345	27090	23988
GRAND TOTAL - FC	163492	169773	191820	134551	179881	101082	96963	116117	199930	185477	230290	102527	91008	40668	65516
\$ per mile (000)	1712	1192	308	153	176	245	241	109	190	620	846	192	133	178	83
\$/cct-mi	.90	.63	.19	.15	.16	.26	.27	.15	.15	.32	.35	.22	.20	.51	.27
4.05 Gbps DIGITAL FO SYSTEM															
100 mi Repeater Spacing															
First Cost (\$000)	2199	3279	14341	9526	23483	4743	4638	12516	24284	6884	9399	6156	7851	2624	9054
48f fiber FO Cable	149	222	970	644	1589	321	314	847	1643	466	636	416	531	178	612
Cable Installation	610	909	3977	5293	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Mtr/Rcur	3477	3477	2924	1897	1976	1739	1660	1344	2371	3477	4347	1660	1265	711	632
F.O. Line Repeater	1159	2318	6823	5690	7245	2898	2766	1926	8694	3477	4347	3319	2951	711	1686
T/RM Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Mux	93027	93456	79526	51233	53248	46135	44028	35005	62304	94509	116968	43040	32206	16992	14983
GRAND TOTAL - AC	100802	103901	109101	75432	94831	58886	56398	62358	106808	111022	137733	58485	49697	22971	32589
\$ per mile (000)	1055	730	175	91	93	143	140	57	101	371	506	109	73	101	41
\$/cct-mi	.56	.38	.11	.09	.09	.15	.16	.08	.08	.19	.21	.12	.11	.29	.14
4.05 Gbps DIGITAL FO SYSTEM															
100 mi Repeater Spacing															
First Cost (\$000)	2728	4066	17786	23626	29123	11766	11505	31045	30116	8537	7771	15270	19475	6509	22458
48f fiber FO Cable	185	275	1203	1598	1970	796	778	2100	2037	578	526	1033	1317	440	1519
Cable Installation	1513	2255	9665	13103	16152	6526	6361	17218	16703	4735	4310	8469	10801	3610	12456
F.O. Mtr/Rcur	5670	5670	5040	3150	3150	2835	2835	2205	3780	5670	6930	2835	2205	1260	1260
F.O. Line Repeater	1890	3780	11760	9450	11550	4725	4725	8085	13860	5670	6930	5670	5145	1260	3360
T/RM Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500
M13 Mux	148313	148995	126788	82478	84893	73553	70193	55808	99330	150675	186480	68618	51345	27090	23988
GRAND TOTAL - FC	160748	165642	173791	135055	148788	101250	97467	118411	167777	176615	213696	103094	91630	40920	66440
\$ per mile (000)	1683	1163	279	163	146	246	242	109	159	591	786	193	134	180	84
\$/cct-mi	.89	.61	.17	.15	.13	.26	.27	.15	.13	.31	.33	.22	.20	.52	.28
Annual Cost (\$000)															
48f fiber FO Cable	1100	1639	7171	9525	11741	4743	4638	12516	12142	3442	3133	6156	7851	2624	9054
48f Ca Splicing	74	111	485	644	794	321	314	847	821	233	212	416	531	178	612
Cable Installation	610	909	3977	5293	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Mtr/Rcur	3556	3556	3161	1976	1976	1778	1778	1383	2371	3556	4347	1778	1383	790	790
F.O. Line Repeater	1185	2371	7376	5927	7245	2964	2964	5071	8694	3556	4347	3556	3227	790	2108
T/RM Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Mux	93027	93456	79526	51233	53248	46135	44028	35005	62304	94509	116968	43040	32206	16992	14983
GRAND TOTAL - AC	99733	102282	102236	75748	82295	58992	56714	62642	93644	107605	131043	58841	50092	23130	33168
\$ per mile (000)	1044	713	164	92	81	143	141	58	89	360	482	110	73	101	42
\$/cct-mi	.55	.36	.10	.09	.07	.15	.16	.08	.07	.19	.20	.13	.11	.29	.14

FIGURE 6.49: 1995 TRAFFIC, 48F F0 CABLE

23 NODE NETWORK

Traffic Factor Mileage Factor	100 mi Repeater Spacing														
	Route	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	Total
Actual Traffic		232700	514109	321045	216835	368509	1313575	1088584	1077101	102971	567715	543154	545704	670720	
W/Cts Req'd		310266	685479	428061	289113	491479	1751433	1451446	1436135	137295	756954	724206	727606	894294	
Initial Fill															
Total W/Circuits		387833	856849	535076	361391	614349	2189291	1814307	1795169	171618	946192	905257	909507	1117867	30499238
System Mileage		1602.07	407.05	215.50	458.84	197.88	104.60	131.89	295.84	918.09	286.50	218.49	339.16	273.85	13862.27
Circuit Miles (000)		621333	348784	115308	165820	121568	229009	239295	531078	157561	242694	199071	308467	305909	12353733
1.7 Gbps DIGITAL F0 SYSTEM															

100 mi Repeater Spacing

1.7 Gbps DIGITAL F0 SYSTEM															
First Cost (\$000)	45755	11625	6155	13104	5551	8962	7534	16896	26221	7326	6154	9686	15631	530383	
48 fiber F0 Cable	3095	786	416	886	382	606	510	1143	1774	496	416	655	1057	35879	
48F Ca Splicing	25377	6448	3413	7268	3134	1857	2089	4686	14543	4063	3413	5372	4335	219895	
Cable Installation	1260	2520	1638	1134	1890	6300	5292	5292	630	2772	2646	2646	3276	99838	
F.O. Rctr/Rcvr	7140	4200	1638	1890	1260	4200	3528	5292	2100	2772	2646	3528	3276	137580	
F.O. Line Repeater	2850	1050	750	1050	600	600	600	750	1800	750	750	900	750	31500	
T/Rm Bldg, Power	30345	66990	41843	28245	48038	171045	141750	140280	13440	73973	70770	71085	87360	2383605	
M13 Mux	115822	93620	55853	53578	60926	193371	161303	174341	60507	92150	66796	93873	116685	3428650	
GRAND TOTAL - FC	72	230	259	117	308	1849	1223	589	66	359	403	277	423	247	
\$ per mile (000)	19	27	48	32	50	84	67	33	38	38	44	30	38	28	
\$/cct-mi															

100 mi Repeater Spacing

4.05 Gbps DIGITAL F0 SYSTEM															
First Cost (\$000)	45755	11625	6155	13104	5551	2987	3767	8449	26221	7326	6154	9686	7816	306178	
48 fiber F0 Cable	3095	786	416	886	382	202	255	572	1774	496	416	655	529	26821	
48F Ca Splicing	25377	6448	3413	7268	3134	1857	2089	4686	14543	4063	3413	5372	4335	219895	
Cable Installation	1260	2520	1638	1134	1890	6300	5292	5292	630	2772	2646	2646	3276	99838	
F.O. Rctr/Rcvr	7140	4200	1638	1890	1260	4200	3528	5292	2100	2772	2646	3528	3276	137580	
F.O. Line Repeater	8925	4725	1890	2100	1470	4410	3570	5355	3150	2835	2835	3780	3465	146370	
T/Rm Bldg, Power	30345	66990	41843	28245	48038	171045	141750	140280	13440	73973	70770	71085	87360	2383605	
M13 Mux	117922	94460	56357	53914	61481	187517	157386	165447	61872	92276	87174	94314	107719	3299138	
GRAND TOTAL - FC	74	232	262	118	311	1793	1193	559	67	360	405	278	394	238	
\$ per mile (000)	19	27	49	33	51	82	66	31	39	38	45	31	35	27	
\$/cct-mi															

100 mi Repeater Spacing

Annual Cost (\$000)															
48 fiber F0 Cable	18447	4687	2481	5283	2278	1204	1519	3406	10571	2953	2481	3905	3151	159445	
48F Ca Splicing	1448	317	168	357	154	81	103	230	715	200	168	264	213	10413	
Cable Installation	10331	2899	1376	2930	1264	668	842	1889	5663	1638	1376	2166	1748	88654	
F.O. Rctr/Rcvr	988	1778	1185	790	1383	4149	3359	3359	593	1778	1778	1778	2173	91809	
F.O. Line Repeater	5598	2964	1185	1317	922	2766	2239	3359	1976	1778	1778	2371	2173	91809	
T/Rm Bldg, Power	1138	419	300	419	240	240	240	300	719	300	300	360	300	12583	
M13 Mux	19031	42019	26245	17716	30131	107286	88911	87989	8430	46398	44390	44587	54796	1495092	
GRAND TOTAL - AC	56884	54784	32941	28614	36372	116395	97213	100533	28867	55046	52271	55431	64554	1918070	
\$ per mile (000)	35	135	153	63	184	1113	737	340	31	215	243	163	236	138	
\$/cct-mi	09	16	29	17	30	51	41	19	18	23	27	18	21	16	

FIGURE 6.50: 23 NODE NETWORK 1995 TRAFFIC, 96f FO CABLE

Traffic Factor
1.955
Mileage Factor
1.15

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
Actual Traffic	1138799	1144064	973359	633384	651593	564617	536706	428457	762592	1186994	1431917	526336	394200	207994	163107
UF Ccts Req'd	1518399	1529419	1297812	844512	868791	752823	718275	571276	1016789	1542658	1909223	702681	525600	277325	244142
Initial Fill	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8
Total UF Circuits	1897998	1906774	1622265	1055640	1085989	941029	897844	714095	1270966	1928323	2386528	878227	657000	346857	305178
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66	681.88	227.92	786.34
Circuit Miles(000)	181273	271489	1010281	873269	1107401	387670	361692	776223	1340245	676413	649350	469851	447996	79009	239372

1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing															
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58760	56993	16156	29412	28897	36854	12319	42500
96 fiber FO Cable	346	516	2256	2936	3693	1492	1459	3937	3819	1083	1971	1937	2470	826	2848
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456
F.O. Htr/Rcvr	5544	5544	4662	3024	3150	2772	2646	2142	3780	5544	6930	2646	2016	1134	1008
F.O. Line Repeater	1848	3760	10878	9072	11550	4620	4410	7854	13860	5544	6930	5292	4704	1134	2688
I/Rh Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500
M13 Mux	148313	148995	126788	82478	84893	73553	70193	55808	99330	150675	186480	68618	51345	27090	23888
GRAND TOTAL - FC	163175	169301	189457	157034	176502	112278	107912	147659	196436	184487	236783	117058	109640	46862	86887
\$ per mile (000)	1709	1189	304	190	173	273	268	136	186	617	870	219	161	206	110
\$/cct-mi	.90	.62	.19	.18	.16	.29	.30	.19	.15	.32	.36	.25	.24	.59	.36

4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing															
First Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	6514	11858	11650	14858	4966	17134
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	436	795	781	996	333	1148
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Htr/Rcvr	3477	3477	2924	1897	1976	1739	1660	1344	2371	3477	4347	1660	1265	711	632
F.O. Line Repeater	1189	2318	6823	5690	7245	2898	2766	4926	8634	3477	4347	3319	2961	711	1686
I/Rh Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Mux	93027	93456	79526	51733	53248	46135	44028	36005	62304	94509	116968	43040	32206	16992	14983
GRAND TOTAL - RC	100674	103711	108269	84436	93468	63400	60812	74269	105359	110623	140351	64343	57169	25469	41205
\$ per mile (000)	1054	728	174	102	92	154	151	68	100	370	516	120	84	112	52
\$/cct-mi	.56	.38	.11	.10	.08	.16	.17	.10	.08	.19	.22	.14	.13	.32	.17

1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing															
First Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	6514	11858	11650	14858	4966	17134
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	436	795	781	996	333	1148
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Htr/Rcvr	3477	3477	2924	1897	1976	1739	1660	1344	2371	3477	4347	1660	1265	711	632
F.O. Line Repeater	1189	2318	6823	5690	7245	2898	2766	4926	8634	3477	4347	3319	2961	711	1686
I/Rh Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Mux	93027	93456	79526	51733	53248	46135	44028	36005	62304	94509	116968	43040	32206	16992	14983
GRAND TOTAL - RC	100674	103711	108269	84436	93468	63400	60812	74269	105359	110623	140351	64343	57169	25469	41205
\$ per mile (000)	1054	728	174	102	92	154	151	68	100	370	516	120	84	112	52
\$/cct-mi	.56	.38	.11	.10	.08	.16	.17	.10	.08	.19	.22	.14	.13	.32	.17

4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing															
First Cost (\$000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	6514	11858	11650	14858	4966	17134
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	436	795	781	996	333	1148
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Htr/Rcvr	3477	3477	2924	1897	1976	1739	1660	1344	2371	3477	4347	1660	1265	711	632
F.O. Line Repeater	1189	2318	6823	5690	7245	2898	2766	4926	8634	3477	4347	3319	2961	711	1686
I/Rh Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Mux	93027	93456	79526	51733	53248	46135	44028	36005	62304	94509	116968	43040	32206	16992	14983
GRAND TOTAL - RC	100674	103711	108269	84436	93468	63400	60812	74269	105359	110623	140351	64343	57169	25469	41205
\$ per mile (000)	1054	728	174	102	92	154	151	68	100	370	516	120	84	112	52
\$/cct-mi	.56	.38	.11	.10	.08	.16	.17	.10	.08	.19	.22	.14	.13	.32	.17

FIGURE 6.50: 23 NODE NETWORK 1995 TRAFFIC, 96F FO CABLE

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Traffic Factor 1.955
Mileage Factor 1.15

Route	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	Total
Actual Traffic	232700	514109	321045	216835	369609	1313575	1088084	1077101	1029971	567715	543154	545704	670720	
OF Ccts Req'd	310266	685479	428061	289113	491479	1751433	1451446	1436135	137295	756954	724206	727606	894294	
Initial Fill	389833	856849	535076	361391	614349	2189291	1814307	1795169	171618	946192	905257	909507	1117867	3049938
Total OF Circuits	1602.07	407.05	215.50	458.84	197.88	104.60	131.89	295.84	918.09	256.80	215.49	339.16	273.85	13882.27
System Mileage	621333	348784	115308	165820	121568	229009	239295	931078	157561	242694	198071	308467	305909	12563733
Circuit Miles (000)														
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing														
First Cost (\$000)	66588	22000	11647	24799	10695	11307	7129	15989	49621	13863	11647	18331	14790	770669
96 fiber FO Cable	5603	1474	781	1662	717	758	476	1072	3325	929	780	1228	991	51646
96f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895
Cable Installation	1260	2520	1638	1134	1890	6300	5292	5292	630	2772	2646	2646	3276	89838
F.O. Repr/Repr	2140	4200	1638	1890	1260	4200	3528	5292	2100	2772	2646	3528	3276	137850
F.O. Line Repeater	2650	1050	750	1050	600	600	600	750	1800	750	750	900	750	31900
1/Rn Bldg, Power	30345	66990	41845	26245	48038	171045	141750	140280	13440	73973	70770	71085	87360	2383405
M13 Rn	159363	104683	61710	66048	65334	195867	160865	173361	85459	99122	92652	103091	114778	3684703
GRAND TOTAL - FC	99	257	286	144	335	1872	1220	586	93	386	430	304	419	265
\$ per mile (000)	.26	.30	.54	.40	.55	.66	.67	.33	.54	.41	.47	.33	.38	.30
\$/cct-mi														
Annual Cost (\$000)														
96 fiber FO Cable	34909	8870	4696	9998	4312	4859	2874	6446	20005	5589	4695	7390	5963	310705
96f Ca Splicing	2339	594	315	670	289	305	193	432	1341	375	315	495	400	20822
Cable Installation	10231	2599	1376	2930	1264	668	842	1889	5663	1638	1376	2166	1748	88654
F.O. Repr/Repr	790	1581	1027	711	1185	3952	3319	3319	395	1739	1660	1660	2055	56360
F.O. Line Repeater	4478	2634	1027	1185	790	2634	2213	3319	1317	1739	1660	2213	2055	66277
1/Rn Bldg, Power	1138	419	300	419	240	240	240	300	719	300	300	360	300	12583
M13 Rn	19034	42019	26245	17716	30131	107286	88911	87989	8430	46398	44390	44587	54796	1495092
GRAND TOTAL - AC	72921	58717	34986	33631	33211	119634	98592	103695	38071	57777	54395	58871	67315	2070482
\$ per mile (000)	.46	.144	.162	.73	.193	.1144	.748	.351	.41	.225	.252	.174	.246	.119
\$/cct-mi	.12	.17	.30	.20	.31	.52	.41	.20	.24	.24	.28	.19	.22	.17
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing														
First Cost (\$000)	86588	22000	11647	24799	10695	5554	7129	15989	49621	13863	11647	18331	14790	750309
96 fiber FO Cable	5603	1474	781	1662	717	758	476	1072	3325	929	780	1228	991	50382
96f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895
Cable Installation	1260	2520	1638	1134	1890	6300	5292	5292	630	2772	2646	2646	3276	94900
F.O. Repr/Repr	2140	4200	1638	1890	1260	4200	3528	5292	2100	2772	2646	3528	3276	146370
F.O. Line Repeater	2650	1050	750	1050	600	600	600	750	1800	750	750	900	750	31900
1/Rn Bldg, Power	30345	66990	41845	26245	48038	171045	141750	140280	13440	73973	70770	71085	87360	2383405
M13 Rn	161463	105523	62214	66384	65338	190359	160970	173487	86824	99248	93030	103532	115156	3676461
GRAND TOTAL - FC	101	259	289	145	338	1820	1220	586	95	387	432	305	421	265
\$ per mile (000)	.26	.30	.54	.40	.55	.67	.67	.33	.55	.41	.48	.34	.38	.30
\$/cct-mi														
Annual Cost (\$000)														
96 fiber FO Cable	34909	8870	4696	9998	4312	4859	2874	6446	20005	5589	4695	7390	5963	302497
96f Ca Splicing	2339	594	315	670	289	305	193	432	1341	375	315	495	400	20372
Cable Installation	10231	2599	1376	2930	1264	668	842	1889	5663	1638	1376	2166	1748	88654
F.O. Repr/Repr	790	1581	1027	711	1185	3952	3319	3319	395	1739	1660	1660	2055	56274
F.O. Line Repeater	4478	2634	1027	1185	790	2634	2213	3319	1317	1739	1660	2213	2055	13809
1/Rn Bldg, Power	1138	419	300	419	240	240	240	300	719	300	300	360	300	12583
M13 Rn	19034	42019	26245	17716	30131	107286	88911	87989	8430	46398	44390	44587	54796	1495092
GRAND TOTAL - AC	72921	58717	34986	33631	33211	119634	98592	103695	38071	57777	54395	58871	67315	2070482
\$ per mile (000)	.46	.146	.164	.74	.195	.1124	.748	.351	.42	.226	.254	.174	.247	.149
\$/cct-mi	.12	.17	.31	.20	.32	.51	.41	.20	.25	.24	.28	.19	.22	.17

Figure 6.51: 23 NODE NETWORK

1.3 M 1995 TRAFFIC, 48F FO CABLE

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Traffic Factor 2.5415
Hilange Factor 1.15

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
Actual Traffic	1480439	1487284	1265367	823399	847072	734002	700318	596994	991369	1504092	1861492	685017	512460	270392	238039
VF Ccts Req'd	1973918	1983045	1687155	1097866	1129429	978670	933768	742658	1321825	2005456	2481989	913356	683280	360623	317385
Initial Fill	-8														
Total VF Circuits	2467398	2478606	2108944	1372332	1411786	1223337	1167197	928323	1652282	2506820	3102487	1141695	854099	450654	396731
System Hilange	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66	681.88	227.92	286.34
Circuit Miles(000)	235655	352936	1313365	1135249	1439621	503972	470199	1009090	1742319	749337	844156	610416	582394	102712	311964
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing															
First Cost (\$000)	8183	12199	35572	47252	58246	23531	23011	31045	60233	25611	23313	30540	19475	6509	22458
48F fiber FO Cable	554	825	2406	3196	3940	1592	1587	2100	4075	1733	1577	2066	1317	440	1519
Cable Installation	1513	2255	9865	13103	16152	6526	6361	17218	16703	4735	4310	8469	10801	3610	12456
F.O. Mtr/Repr	7056	7182	4048	4032	4158	3554	3528	2772	4768	7182	8946	3276	5880	1386	1260
F.O. Line Repeater	2352	4788	14112	12096	15246	6090	5880	10164	17556	7182	8946	6552	5880	1386	1260
1/R4 Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500
M13 Num	192780	193673	164798	107258	110303	95603	91193	72555	129098	195878	242393	89198	66728	35228	31028
GRAND TOTAL - FC	212887	221522	234150	186587	209995	138045	132599	137804	234400	243070	290234	141300	108070	49309	73580
\$ per mile (000)	2229	1556	376	228	206	335	329	127	222	813	1067	264	158	216	94
\$/cct-mi	.90	.63	.18	.17	.15	.27	.26	.14	.13	.32	.34	.23	.19	.48	.24
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing															
First Cost (\$000)	3299	4918	14341	19050	23483	9487	9277	12516	24284	10326	9399	12312	7851	2624	9054
48F fiber FO Cable	223	333	970	1289	1589	642	628	847	1643	698	636	833	531	178	612
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Mtr/Repr	4426	4505	3794	2529	2608	2292	2213	1739	3003	4505	5611	2056	1581	869	790
F.O. Line Repeater	1475	3003	8852	7887	9563	3920	3688	6375	11012	4505	5611	4110	3688	869	2108
1/R4 Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Num	120919	121479	103368	67276	69186	59966	57200	45509	80975	122862	152038	55948	41854	22096	19462
GRAND TOTAL - AC	131132	135387	135840	103673	113719	79257	75997	74707	128429	145104	175333	79152	60399	28392	37647
\$ per mile (000)	1373	951	218	125	112	192	189	69	122	485	644	148	89	125	48
\$/cct-mi	.56	.38	.10	.09	.08	.16	.16	.07	.07	.19	.21	.13	.10	.28	.12
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing															
First Cost (\$000)	2728	4066	17786	23626	29123	11766	11505	31045	30116	8537	15542	15270	19475	6509	22458
48F fiber FO Cable	185	275	1203	1598	1970	796	778	2100	2037	578	1051	1033	1317	440	1519
Cable Installation	1513	2255	9865	13103	16152	6526	6361	17218	16703	4735	4310	8469	10801	3610	12456
F.O. Mtr/Repr	7245	7245	6300	4095	4095	3780	3465	2835	5040	7245	9135	3465	2835	1575	1575
F.O. Line Repeater	2415	4830	14700	12285	15015	6300	5775	10395	18480	7245	9135	6930	6615	1575	4200
1/R4 Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500
M13 Num	192780	193673	164798	107258	110303	95603	91193	72555	129098	195878	242393	89198	66728	35228	31028
GRAND TOTAL - FC	207315	212944	216001	163615	178608	125820	120147	138098	203424	224967	282316	125564	109120	49467	74735
\$ per mile (000)	2171	1496	347	198	175	305	298	127	193	753	1038	235	160	216	95
\$/cct-mi	.88	.60	.16	.14	.12	.25	.25	.14	.12	.30	.33	.21	.19	.48	.24
Annual Cost (\$000)															
48F fiber FO Cable	1100	1639	7171	9525	11741	4743	4638	12516	12142	3442	6266	6156	7851	2624	9054
48F Ca Splicing	74	111	465	644	794	321	314	847	821	233	424	416	531	178	612
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Mtr/Repr	4444	4544	3952	2569	2569	2371	2173	1778	3161	4944	5730	2173	1778	988	988
F.O. Line Repeater	1515	3030	9220	7706	9418	3952	3632	6520	11591	4544	5730	4347	4149	988	2634
1/R4 Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Num	120919	121479	103368	67276	69186	59966	57200	45509	80975	122862	152038	55948	41854	22096	19462
GRAND TOTAL - AC	128942	131952	128712	93662	100999	74403	70940	74891	116204	137834	172225	72935	61058	28629	38371
\$ per mile (000)	1360	927	207	113	99	181	176	69	110	461	633	136	90	126	49
\$/cct-mi	.55	.37	.10	.08	.07	.15	.15	.07	.07	.18	.20	.12	.10	.28	.12

FIGURE 6.51: 23 NODE NETWORK

1.3 M 1995 TRAFFIC, 48F FO CABLE

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Traffic Factor
Mileage Factor

Route	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	Total
Actual Traffic	302509	668342	417359	281885	479192	1707647	1415160	1400232	133862	738030	706101	703416	871937	
W/Cts Req'd	403346	891123	556479	375847	638923	2276863	1886880	1866976	178483	984040	941467	945888	1162582	
Initial Fill														
Total W/Cts	504182	1113903	695598	469809	798833	2846079	2358600	2337319	223104	1230050	1176834	1182360	1453228	59649010
System Mileage	1602.07	407.05	215.50	458.84	197.88	104.60	131.89	295.84	918.10	256.80	215.49	339.16	273.65	13812.27
Circuit Miles(000)	807733	453419	149900	215566	158038	297711	311084	690402	204830	315503	283593	401007	397682	16069852
1.7 Gbps DIGITAL FO SYSTEM														
100 mi Repeater Spacing														
First Cost (\$000)	45755	23251	6155	13104	5651	8962	11301	25347	26221	14651	12309	19373	16631	654868
48 fiber FO Cable			416	866	382	606	764	1715	1774	991	833	1311	1057	44301
48F Cc Splicing	3095	1573	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895
Cable Installation	25377	6448	2142	1386	2394	8064	6804	6804	756	3654	3528	4284	3528	115920
F.O. Rctr/Rcvr	1512	3276	2142	2310	1596	5376	4536	6804	2520	3654	3528	4284	3528	115920
F.O. Line Repeater	8568	5460	2142	2310	1596	5376	4536	6804	2520	3654	3528	4284	3528	115920
T/Rd Bldg, Power	2850	1050	750	1050	600	600	600	750	1800	750	750	900	750	31500
M13 Mon	39428	87045	54390	36750	62423	222390	184275	182333	17430	96128	91980	92400	113536	3098335
GRAND TOTAL - FC	126584	128103	69408	62755	76181	247656	210369	228439	65043	123891	116341	127687	143899	4341812
\$ per mile (000)	79	315	322	137	385	2368	1595	772	71	483	540	376	526	313
\$/cct-mi	.16	.28	.46	.29	.48	.83	.68	.33	.32	.39	.46	.32	.36	.27
4.05 Gbps DIGITAL FO SYSTEM														
100 mi Repeater Spacing														
First Cost (\$000)	18447	9374	2481	5283	2278	3613	4556	10219	10571	5907	4962	7810	6302	264027
48 fiber FO Cable	1248	634	168	357	154	244	308	691	715	400	336	528	426	17861
48F Cc Splicing	10231	2599	1376	2930	1264	668	842	1889	5853	1638	1376	2166	1748	88654
Cable Installation	948	2055	1344	869	1502	5058	4268	4268	474	2292	2213	2213	2687	72110
F.O. Rctr/Rcvr	5374	3425	1344	1449	1001	3372	2845	4268	1501	2292	2213	2213	2687	111067
F.O. Line Repeater	1138	419	300	419	240	240	240	300	719	300	300	360	300	12583
T/Rd Bldg, Power	24730	54598	34116	23051	39154	139492	115585	114366	10933	60295	57694	57957	71228	1943336
M13 Mon	62117	73105	41128	34360	45593	152687	128644	135001	30856	73123	69093	73985	85377	2510136
GRAND TOTAL - FC	39	180	191	75	230	1460	975	460	34	285	321	218	312	181
\$ per mile (000)	.06	.16	.27	.16	.29	.51	.41	.20	.15	.23	.27	.18	.21	.16
\$/cct-mi	.16	.26	.46	.29	.48	.82	.65	.31	.32	.37	.43	.29	.34	.25
4.05 Gbps DIGITAL FO SYSTEM														
100 mi Repeater Spacing														
First Cost (\$000)	48755	11625	6155	13104	5651	8962	11301	25347	26221	14651	12309	19373	16631	654868
48 fiber FO Cable			416	866	382	606	764	1715	1774	991	833	1311	1057	44301
48F Cc Splicing	3095	1573	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895
Cable Installation	25377	6448	2142	1386	2394	8064	6804	6804	756	3654	3528	4284	3528	115920
F.O. Rctr/Rcvr	1090	3425	2205	1575	2520	8190	6930	6930	945	3780	3465	4620	4225	162640
F.O. Line Repeater	10710	5775	2205	2625	1680	5460	4620	6930	3180	3780	3465	4620	4225	162640
T/Rd Bldg, Power	39428	87045	54390	36750	62423	222390	184275	182333	17430	96128	91980	92400	113536	3098335
M13 Mon	129104	116195	69534	63259	76391	244676	202536	210649	65862	116321	109644	117099	136436	4040070
GRAND TOTAL - FC	81	285	323	138	366	2339	1536	712	72	454	509	346	499	295
\$ per mile (000)	.16	.26	.46	.29	.48	.82	.65	.31	.32	.37	.43	.29	.34	.25
\$/cct-mi	.16	.26	.46	.29	.48	.82	.65	.31	.32	.37	.43	.29	.34	.25
4.05 Gbps DIGITAL FO SYSTEM														
100 mi Repeater Spacing														
First Cost (\$000)	10447	4687	2481	5283	2278	3613	4556	10219	10571	5907	4962	7810	6302	264027
48 fiber FO Cable	1248	634	168	357	154	244	308	691	715	400	336	528	426	17861
48F Cc Splicing	10231	2599	1376	2930	1264	668	842	1889	5853	1638	1376	2166	1748	88654
Cable Installation	948	2055	1344	869	1502	5058	4268	4268	474	2292	2213	2213	2687	72110
F.O. Rctr/Rcvr	1185	2123	1383	988	1501	5137	4347	4347	593	2371	2173	2998	2964	116111
F.O. Line Repeater	6718	3622	1383	1647	1054	3425	2898	4347	1976	2371	2173	2998	2964	116111
T/Rd Bldg, Power	1138	419	300	419	240	240	240	300	719	300	300	360	300	12583
M13 Mon	24730	54598	34116	23051	39154	139492	115585	114366	10933	60295	57694	57957	71228	1943336
GRAND TOTAL - FC	63698	68417	41207	34676	45724	151533	125585	128886	31370	70128	63665	69723	82566	2411581
\$ per mile (000)	40	168	191	76	231	1449	952	436	34	273	308	206	302	154
\$/cct-mi	.08	.15	.27	.16	.29	.51	.40	.19	.15	.22	.26	.17	.21	.15

2.5

FIGURE 6.52: 2.5 NODE NETWORK 1.3 M 1995 TRAFFIC, 96f FO CABLE Page 1 of 2

Traffic Factor	2.5-415	1-15	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
Mileage Factor	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8		
Actual Traffic	1480439	1487284	1265367	823399	847072	734002	700318	556994	991369	1504092	1861492	685017	512460	270392	238039		
WF Ccts Req'd	1973918	1983045	1687155	1097866	1129429	978670	933758	742658	1321825	2005456	2481989	913556	663280	360523	317385		
Initial Fill	2467398	2478806	2108944	1372332	1411786	1223337	1167197	928323	1652282	2506820	3102487	1141695	854099	450654	396731		
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66	681.88	237.92	286.34		
Circuit Miles (0000)	235655	352936	1313365	1135249	1439621	503972	470199	1009090	1742319	749337	644156	610416	562394	102712	311964		
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing																	
First Cost (\$0000)	10324	15391	33659	44711	55114	22266	21773	58750	56993	32312	29412	26897	36854	12319	42500		
96 fiber FO Cable	692	1031	2256	2996	3693	1492	1459	3937	3619	2165	1971	1937	2470	826	2848		
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456		
F.O. Rctr/Rscr	7056	7182	6048	4032	4158	3554	3528	2772	4788	7182	6946	3276	2520	1386	1360		
F.O. Line Repeater	2352	4788	14112	12096	15246	6090	5880	10164	17566	7182	6946	6552	5880	1386	3360		
T/Rn Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500		
N13 Run	192780	193673	164798	107258	110303	95603	91193	72555	129098	195878	242393	89198	66728	39228	31028		
GRAND TOTAL - FC	215167	224920	232087	185846	206616	136680	131264	167347	230907	250204	296727	139528	126603	55504	94951		
\$ per mile (0000)	2253	1580	373	225	203	332	326	154	219	837	1091	261	186	244	121		
\$/cct-mi	.91	.64	.16	.16	.14	.27	.28	.17	.13	.33	.35	.23	.22	.54	.30		
Annual Cost (\$0000)	4162	6205	13570	18026	22220	8977	8778	23686	22978	13027	11858	11650	14858	4966	17134		
96 fiber FO Cable	279	416	909	1208	1489	602	588	1587	1540	873	795	781	996	333	1148		
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022		
F.O. Rctr/Rscr	4426	4505	3794	2529	2608	2292	2213	1739	3003	4505	5611	2055	1551	1069	790		
F.O. Line Repeater	1475	3003	8852	7587	9563	3620	3686	6375	11012	4505	5611	4110	3688	169	2108		
T/Rn Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599		
N13 Run	120919	121479	103368	67276	69186	59966	57200	45509	80975	122862	152038	55948	41854	23096	19462		
GRAND TOTAL - RC	132051	136757	135008	102568	112357	78706	75459	86617	127021	147980	177950	78437	67871	30889	46263		
\$ per mile (0000)	1383	960	217	124	110	191	187	80	120	495	654	147	100	136	59		
\$/cct-mi	.56	.39	.10	.09	.08	.16	.16	.09	.07	.20	.21	.13	.12	.30	.15		
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing																	
First Cost (\$0000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	16156	14706	28897	36854	12319	42500		
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3619	2165	1971	1937	2470	826	2848		
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456		
F.O. Rctr/Rscr	7245	7245	6300	4095	4095	3780	3465	2835	5040	7245	9135	3465	2835	1575	1575		
F.O. Line Repeater	2415	4630	14700	12385	15015	6300	5725	10395	18480	7245	9135	6930	6615	1575	4200		
T/Rn Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500		
N13 Run	192780	193673	164798	107258	110303	95603	91193	72555	129098	195878	242393	89198	66728	39228	31028		
GRAND TOTAL - FC	209911	216814	232927	186098	206322	137016	131096	167641	232083	233091	281414	140095	127653	55504	94951		
\$ per mile (0000)	2198	1623	374	225	202	333	325	154	220	780	1034	262	187	245	122		
\$/cct-mi	.89	.61	.16	.16	.14	.27	.28	.17	.13	.31	.33	.23	.22	.54	.31		
Annual Cost (\$0000)	2081	3103	13570	18026	22220	8977	8778	23686	22978	6514	5929	11650	14858	4966	17134		
96 fiber FO Cable	139	208	909	1208	1489	602	588	1587	1540	436	397	781	996	333	1148		
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022		
F.O. Rctr/Rscr	4544	4544	3952	2529	2608	2292	2213	1739	3003	4505	5611	2055	1551	1069	790		
F.O. Line Repeater	1515	3030	9220	7706	9418	3752	3622	6520	11591	4544	5730	4347	4149	1688	2634		
T/Rn Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599		
N13 Run	120919	121479	103368	67276	69186	59966	57200	45509	80975	122862	152038	55948	41854	23096	19462		
GRAND TOTAL - RC	129969	133512	135535	102726	112172	78917	75354	86802	127758	141109	171861	78793	68529	31126	46987		
\$ per mile (0000)	1361	938	218	134	110	192	187	80	121	472	632	147	101	137	60		
\$/cct-mi	.55	.38	.10	.09	.08	.16	.16	.09	.07	.19	.20	.13	.12	.30	.15		

FIGURE 6.52: 23 NODE NETWORK 1.3 * 1995 TRAFFIC, 96f FO CABLE

Traffic Factor Mileage Factor	Route													Total
2.5415 1.15	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	
Actual Traffic	302509	668342	417359	281885	479192	1707647	1415160	1400232	133862	738030	706101	709416	871937	
OF Ccts Req'd	403346	891123	556479	375847	638923	2276863	1886880	1866975	178483	984040	941467	945888	1162582	
Initial Fill														
Total Wf Circuits	504182	1113903	695598	469809	798653	2846079	2358600	2333719	223104	1230050	1176834	1182360	1453228	39649010
System Mileage	1602.07	407.05	215.50	458.84	197.88	104.60	131.89	295.84	918.09	256.50	215.49	339.16	273.65	13882.27
Circuit Miles(000)	807733	453419	149900	215566	158038	297711	311084	690402	204830	315503	253593	401007	397682	16059352
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing														
First Cost (\$000)	86588	22000	11647	24799	10695	11307	14257	31979	49621	13863	11647	18331	14790	822800
96 fiber FO Cable	5803	1474	781	1662	717	758	955	2143	3325	929	780	1228	991	55140
96f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219095
Cable Installation	1512	3276	2142	1386	2394	8064	6804	6804	756	3654	3528	3528	4284	115920
F.O. Mtr/Rcvr	8568	5460	2142	2310	1596	5376	4536	6804	2520	3654	3528	4704	4284	177072
F.O. Line Repeater	2850	1050	750	1050	600	600	600	750	1800	750	750	900	750	31500
T/Rx Bldg, Power	39428	87045	54390	36750	62423	223390	184275	182333	17430	96128	91980	92400	113558	3098335
M13 Rcvr	170125	126754	75265	75225	81589	250152	213517	235498	89995	123041	115626	126464	142992	4520862
GRAND TOTAL - FO	106	311	349	164	412	2391	1619	796	98	480	537	373	523	326
\$ per mile (000)	.21	.28	.50	.35	.52	.84	.69	.34	.44	.39	.46	.32	.36	.28
\$/cct-mi														
Annual Cost (\$000)	34909	8870	4696	9998	4312	4559	5748	12893	20005	5589	4695	7390	5963	331723
96 fiber FO Cable	2339	594	315	670	289	305	385	864	1341	375	315	495	400	22230
96f Ca Splicing	10231	2699	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	88554
Cable Installation	948	2055	1344	869	1502	5058	4268	4268	474	2292	2213	2213	2687	72710
F.O. Mtr/Rcvr	5374	3425	1344	1449	1001	3372	2845	4268	1591	2292	2213	2951	2687	111067
F.O. Line Repeater	1138	419	300	419	240	240	240	300	719	300	300	360	300	12583
T/Rx Bldg, Power	24730	54598	34116	23051	39154	139492	115385	114366	10933	60295	57694	57957	71228	1943336
M13 Rcvr	79671	72561	43489	39387	47761	153694	129913	139847	40916	72780	68805	73531	85012	2582302
GRAND TOTAL - AC	50	178	202	86	241	1469	985	469	45	284	319	217	311	186
\$ per mile (000)	.10	.16	.29	.18	.30	.52	.42	.20	.20	.23	.27	.18	.21	.16
\$/cct-mi														
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing														
First Cost (\$000)	86588	22000	11647	24799	10695	5054	7129	15989	49621	13863	11647	18331	14790	750309
96 fiber FO Cable	5803	1474	781	1662	717	379	478	1072	3325	929	780	1228	991	50362
96f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219095
Cable Installation	1090	3465	2205	1575	2521	8190	6930	6930	945	3780	3465	3465	4725	140015
F.O. Mtr/Rcvr	10710	6775	2205	2625	1630	5460	4620	6930	3150	3780	3465	4620	4725	150040
F.O. Line Repeater	2850	1050	750	1050	600	600	600	750	1800	750	750	900	750	31500
T/Rx Bldg, Power	39428	87045	54390	36750	62423	223390	184275	182333	17430	96128	91980	92400	113558	3098335
M13 Rcvr	172645	127258	75391	75729	81769	244329	206120	218690	90814	123393	115500	126317	143874	4490876
GRAND TOTAL - FO	103	313	350	165	413	2336	1563	739	99	481	536	372	526	321
\$ per mile (000)	.21	.28	.50	.35	.52	.82	.66	.32	.44	.39	.46	.31	.36	.28
\$/cct-mi														
Annual Cost (\$000)	34909	8870	4696	9998	4312	2279	2874	6446	20005	5589	4695	7390	5963	302497
96 fiber FO Cable	2339	594	315	670	289	153	193	432	1341	375	315	495	400	20222
96f Ca Splicing	10231	2899	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	88554
Cable Installation	1185	2173	1383	968	1511	5137	4347	4347	593	2371	2173	2173	2964	75373
F.O. Mtr/Rcvr	6718	3622	1383	1647	1054	3425	2898	4347	1976	2371	2173	2898	2964	110441
F.O. Line Repeater	1138	419	300	419	240	240	240	300	719	300	300	360	300	12583
T/Rx Bldg, Power	24730	54598	34116	23051	39154	139492	115385	114366	10933	60295	57694	57957	71228	1943336
M13 Rcvr	81252	72872	43568	39703	47892	151293	126978	132127	41429	72938	68726	73439	85565	2599601
GRAND TOTAL - AC	51	179	202	87	242	1447	963	447	45	284	319	217	313	184
\$ per mile (000)	.10	.16	.29	.18	.30	.51	.41	.19	.20	.23	.27	.18	.22	.16
\$/cct-mi														

FIGURE 6.53: 23 NODE NETWORK

Traffic Factor
1.3685
Mileage Factor
1.15

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
Actual Traffic	797159	800845	681351	443369	456115	395232	377094	299920	533814	809896	1002342	368855	275940	140596	128175
VF Ccts Req'd	1062879	1067793	908468	591158	608154	526976	502793	399893	711752	1079861	1336456	491807	367920	194128	170900
Initial Fill	.8														
Total VF Circuits	1328899	1334742	1135585	738948	760192	658720	628491	499866	889690	1349826	1670570	614759	459900	242660	213624
System Mileage	95.51	142.36	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	634.66	681.88	227.92	786.34
Circuit Miles(000)	126891	190043	707197	611288	775181	271369	253184	543356	938172	403489	454545	328686	313597	55307	167980

1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$000)	5455	6133	35572	23626	29123	11766	11505	31045	30116	17074	16542	15270	19475	6509	22458
48 Fiber FO Cable	369	550	2406	1598	1970	796	778	2100	2037	1155	1051	1033	1317	440	1519
Cable Installation	1513	2255	9855	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456
F.O. Rctr/Rctr	3906	3276	3276	2268	2268	2016	1890	1512	2646	3906	4798	1890	1386	682	756
F.O. Line Repeater	1302	2604	7644	6804	8316	3360	3150	5544	9702	3906	4798	3780	3234	682	2016
1/Rn Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500
M13 Rn	103845	104318	88725	57750	59430	51503	49140	39060	69510	105473	130515	48038	35963	19005	16695
GRAND TOTAL - FC	116840	122366	148838	106800	119210	77016	73895	98429	132655	136999	161744	79679	73525	32079	57399
\$ per mile (000)	1223	859	239	129	117	187	183	91	126	458	594	149	108	141	73
\$/cct-mi	.92	.64	.21	.17	.15	.28	.29	.18	.14	.34	.36	.24	.23	.58	.34

Annual Cost (\$000)	2199	3279	14341	9525	11741	4743	4638	12516	12142	6884	6266	6156	7851	2624	9054
48 Fiber FO Cable	149	222	970	644	794	321	314	847	821	466	424	416	531	178	612
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Rctr/Rctr	2450	2450	2085	1423	1423	1265	1185	948	1640	2450	3003	1185	869	553	474
F.O. Line Repeater	817	1633	4785	4268	5216	2108	1976	3477	6085	2450	3003	2371	2028	153	1265
1/Rn Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Rn	65136	65432	55652	36223	37277	32304	30823	24500	43599	66157	81864	30131	22557	11921	10472
GRAND TOTAL - AC	71540	74165	82329	58025	63742	43791	41928	50009	71821	60614	96598	44154	36731	17384	27498
\$ per mile (000)	749	521	132	70	63	106	104	46	68	270	355	83	57	77	35
\$/cct-mi	.56	.39	.12	.09	.08	.16	.17	.09	.08	.20	.21	.13	.12	.32	.16

4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$000)	2728	4066	17786	23626	29123	11766	11505	31045	30116	8537	7771	15270	19475	6509	22458
48 Fiber FO Cable	185	275	1203	1598	1970	796	778	2100	2037	1155	1051	1033	1317	440	1519
Cable Installation	1513	2255	9855	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456
F.O. Rctr/Rctr	3780	4095	3465	2520	2520	2205	2205	1890	2635	4095	5040	2205	1575	1260	945
F.O. Line Repeater	1260	2730	8085	7560	9240	3675	3675	6930	10395	4095	5040	4410	3675	1760	2520
1/Rn Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500
M13 Rn	103845	104318	88725	57750	59430	51503	49140	39060	69510	105473	130515	48038	35963	19005	16695
GRAND TOTAL - FC	113760	118339	130479	107808	120386	77520	74735	100193	133547	128262	153951	80624	74155	32035	58092
\$ per mile (000)	1191	631	210	130	118	188	186	92	127	429	566	151	109	144	74
\$/cct-mi	.90	.62	.18	.16	.16	.29	.30	.18	.14	.32	.34	.25	.24	.59	.35

Annual Cost (\$000)	1100	1639	7171	9525	11741	4743	4638	12516	12142	3442	3133	6156	7851	2624	9054
48 Fiber FO Cable	74	111	485	644	794	321	314	847	821	233	212	416	531	178	612
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Rctr/Rctr	2371	2569	2173	1581	1581	1383	1383	1185	1778	2569	3161	1383	988	590	593
F.O. Line Repeater	790	1712	5071	4742	5796	2205	2205	4347	6520	2569	3161	2766	2305	790	1581
1/Rn Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Rn	65136	65432	55652	36223	37277	32304	30823	24500	43599	66157	81864	30131	22557	11921	10472
GRAND TOTAL - AC	70261	72612	75068	58657	64480	44107	42455	51116	72374	77177	93569	44747	39126	18058	27333
\$ per mile (000)	736	510	121	71	63	107	105	47	69	258	344	84	57	79	36
\$/cct-mi	.55	.38	.11	.10	.10	.16	.17	.09	.08	.19	.21	.14	.12	.33	.17

FIGURE 6.53: 23 NODE NETWORK

.7 M 1995 TRAFFIC, 48F FO CABLE

Traffic Factor	1.3x.85													
Mileage Factor	1.15													
Route	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	Total
Actual Traffic	162890	359876	224732	151784	258026	919502	762009	753971	72080	397401	380208	381993	469504	
VF Ccts Req'd	217186	479835	299642	202379	344035	1226003	1016012	1005294	96106	529868	506944	509324	626006	
Initial Fill	271483	599794	374553	252974	430044	1532504	1270015	1256618	120133	623334	633680	636655	782507	21349467
Total VF Circuits	1602.07	407.05	215.50	458.84	197.88	104.60	131.89	295.84	918.09	256.50	216.49	339.16	273.65	13862.27
System Mileage	434933	244149	80716	116074	85097	160306	167607	371755	110293	169886	136550	215927	214136	8647613
Circuit Miles(000)														
1.7 Gbps DIGITAL FO SYSTEM														
100 mi Repeater Spacing														
First Cost (\$000)	45755	11625	6155	13104	5651	5975	7634	16898	26221	7326	6154	9686	7816	482569
48f fiber FO Cable	3095	786	416	886	382	404	510	1143	1774	496	416	655	529	30615
48f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895
Cable Installation	882	1890	1134	882	1260	4410	3780	3654	504	2016	2016	2688	2394	64134
F.O. Rctr/Rcor	4998	3150	1134	1470	840	2940	2520	3654	1680	2016	2016	2688	2394	98532
F.O. Line Repeater	2850	1050	750	1050	600	600	600	750	1800	750	750	900	750	31500
T/Rx Bldg, Power	21210	46883	29295	19793	33600	119753	99225	98175	9398	51765	49508	49770	61163	1668503
M13 Mon	104167	71832	42297	44453	45468	135739	116258	128960	55918	68431	64273	71088	79379	2565748
GRAND TOTAL - FC	65	176	196	97	230	1298	681	436	61	267	298	210	290	185
\$ per mile (000)	.24	.29	.52	.38	.53	.85	.69	.35	.51	.40	.47	.33	.37	.30
\$/cct-mi														
Annual Cost (\$000)														
48f fiber FO Cable	18447	4687	2481	5283	2278	2409	3037	6813	10571	2953	2481	3905	3151	162459
48f Ca Splicing	1248	317	168	357	154	163	205	461	715	200	168	264	213	12343
Cable Installation	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	68654
F.O. Rctr/Rcor	553	1185	711	553	790	2766	2371	2292	316	1265	1265	1686	1502	40227
F.O. Line Repeater	3135	1976	711	922	527	1844	1581	2292	1064	1265	1265	1686	1502	61803
T/Rx Bldg, Power	1138	419	300	419	240	240	240	300	719	300	300	360	300	12583
M13 Mon	13304	29407	18375	12415	21075	75114	62238	61579	5894	32469	31053	31218	38364	1046551
GRAND TOTAL - AC	48056	40591	24123	22880	26328	83203	70514	75626	25133	40089	37907	40863	46778	1444620
\$ per mile (000)	30	100	112	50	133	795	535	256	27	156	176	120	171	104
\$/cct-mi	.11	.17	.30	.20	.31	.52	.42	.20	.23	.24	.28	.19	.22	.17
4.05 Gbps DIGITAL FO SYSTEM														
100 mi Repeater Spacing														
First Cost (\$000)	45755	11625	6155	13104	5651	5975	7634	16898	26221	7326	6154	9686	7816	346478
48f fiber FO Cable	3095	786	416	886	382	404	510	1143	1774	496	416	655	529	26831
48f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895
Cable Installation	1260	1890	1134	1260	1575	4725	3780	3780	630	2205	2205	2205	2520	70245
F.O. Rctr/Rcor	7140	3150	1575	2100	1050	3150	2520	3780	2100	2205	2205	2940	2520	110485
F.O. Line Repeater	3850	1050	750	1050	600	600	600	750	1800	750	750	900	750	31500
T/Rx Bldg, Power	21210	46883	29295	19793	33600	119753	99225	98175	9398	51765	49508	49770	61163	1668503
M13 Mon	106687	71832	43179	45451	45993	133074	112236	120192	56464	68809	64651	71529	79631	2534126
GRAND TOTAL - FC	67	176	200	99	232	1272	651	406	62	268	300	211	291	182
\$ per mile (000)	.25	.29	.53	.39	.54	.83	.67	.32	.51	.41	.47	.33	.37	.29
\$/cct-mi														
Annual Cost (\$000)														
48f fiber FO Cable	18447	4687	2481	5283	2278	2409	3037	6813	10571	2953	2481	3905	3151	166485
48f Ca Splicing	1248	317	168	357	154	163	205	461	715	200	168	264	213	10413
Cable Installation	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	68654
F.O. Rctr/Rcor	790	1185	711	988	790	2766	2371	2292	395	1383	1383	1383	1581	44064
F.O. Line Repeater	4728	1976	988	1317	659	1976	1581	2371	1317	1383	1383	1844	1581	69614
T/Rx Bldg, Power	1138	419	300	419	240	240	240	300	719	300	300	360	300	12583
M13 Mon	13304	29407	18375	12415	21075	75114	62238	61579	5894	32469	31053	31218	38364	1046551
GRAND TOTAL - AC	49637	40591	24676	23512	26658	83247	68893	72147	25475	40326	38144	41140	46936	1432121
\$ per mile (000)	31	100	115	51	135	786	522	244	28	157	177	121	172	103
\$/cct-mi	.11	.17	.31	.20	.31	.51	.41	.19	.23	.24	.28	.19	.22	.17

FIGURE 6-54: 23 NODE NETWORK

Traffic Factor 1.3685
Mileage Factor 1.15

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-16	11-4	12-4	12-10	13-8
Actual Traffic	797159	800845	681351	443369	456115	398232	377094	299920	533814	809896	1002342	368855	275940	149596	128175
WF Ccts Req'd	1062879	1067793	908468	591158	608154	526976	502793	399893	711752	1079861	1336456	491807	367920	194128	170900
Initial Fill	.8														
Total WF Circuits	1328599	1334742	1135585	738948	760192	658720	628491	499866	889690	1349826	1670570	614759	459900	242660	213624
System Mileage	95.51	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66	681.88	227.92	786.34
Circuit Miles (000)	126891	190043	707197	611288	775181	271369	253184	543356	938172	403469	454645	328686	313597	55307	167980

1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	16156	14706	28897	36854	12319	42500
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	1083	986	1937	2470	826	2848
Cable Installation	1513	2255	9865	13103	16152	6526	6361	17218	16703	4735	4310	8469	10801	3610	12456
F.O. Rmtr/Rcvr	3906	3906	3276	2268	2268	2016	1890	1512	2646	3906	4788	1890	1386	882	756
F.O. Line Repeater	1302	2604	7644	6804	8316	3360	3150	5544	9702	3906	4788	3780	3234	882	2016
T/Rm Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500
M13 Rmtr	103845	104318	88725	57750	59430	51503	49140	39060	69510	105473	130515	48038	35963	19005	16695
GRAND TOTAL - FC	116524	121894	145774	129282	146923	88212	84843	127972	181324	136008	160842	94210	92058	38373	78771
\$ per mile (000)	1220	856	236	156	144	214	211	118	153	455	591	176	135	168	100
\$/cct-mi	.92	.64	.21	.21	.19	.33	.34	.24	.17	.34	.35	.29	.29	.69	.47

Annual Cost (\$000)

96 fiber FO Cable	2081	3103	13570	18026	22220	8977	8778	23686	22978	6514	5929	11650	14858	4966	17134
96 Ca Splicing	139	208	909	1208	1489	602	588	1587	1540	436	397	781	996	333	1148
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Rmtr/Rcvr	2450	2450	2055	1423	1423	1265	1185	948	1660	2450	3003	1185	869	953	474
F.O. Line Repeater	817	1633	4795	4268	5216	2108	1976	3477	6085	2450	3003	2371	2028	953	1265
T/Rm Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Rmtr	65136	65432	55552	36223	37277	32304	30823	24600	43599	66157	81864	30131	22557	11921	10472
GRAND TOTAL - AC	71413	73925	81497	67089	74915	48305	46342	61920	83375	80215	96234	50012	46203	20081	36114
\$ per mile (000)	748	520	131	81	73	117	115	57	79	268	354	94	68	88	46
\$/cct-mi	.56	.39	.12	.11	.10	.18	.18	.11	.09	.20	.21	.15	.15	.36	.21

4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing

First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	16156	14706	28897	36854	12319	42500
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	1083	986	1937	2470	826	2848
Cable Installation	1513	2255	9865	13103	16152	6526	6361	17218	16703	4735	4310	8469	10801	3610	12456
F.O. Rmtr/Rcvr	3780	4095	3465	2520	2520	2205	2205	1890	2835	4095	5040	2205	1575	1440	945
F.O. Line Repeater	1260	2730	8085	7560	9240	3675	3675	6930	10395	4095	5040	4410	3675	1260	2520
T/Rm Bldg, Power	450	600	1350	1650	1950	1050	1050	1950	1950	750	750	1200	1350	750	1500
M13 Rmtr	103845	104318	88725	57750	59430	51503	49140	39060	69510	105473	130515	48038	35963	19005	16695
GRAND TOTAL - FC	116356	122209	147404	130290	148099	88716	85683	129736	162206	136386	161346	95155	92688	39029	79464
\$ per mile (000)	1218	858	237	158	145	215	213	119	154	456	593	178	136	171	101
\$/cct-mi	.92	.64	.21	.21	.19	.33	.34	.24	.17	.34	.35	.29	.30	.71	.47

Annual Cost (\$000)

96 fiber FO Cable	2081	3103	13570	18026	22220	8977	8778	23686	22978	6514	5929	11650	14858	4966	17134
96 Ca Splicing	139	208	909	1208	1489	602	588	1587	1540	436	397	781	996	333	1148
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Rmtr/Rcvr	2371	2569	2173	1581	1581	1383	1383	1185	1778	2569	3161	1314	988	790	593
F.O. Line Repeater	790	1712	5071	4742	5796	2305	2305	4347	6520	2569	3161	2766	2305	790	1581
T/Rm Bldg, Power	180	240	539	659	779	419	419	779	779	300	300	479	539	300	599
M13 Rmtr	65136	65432	55552	36223	37277	32304	30823	24600	43599	66157	81864	30131	22557	11921	10472
GRAND TOTAL - AC	71307	74172	81892	67721	75653	48521	46869	63026	83928	80452	96550	50605	46598	20556	36349
\$ per mile (000)	747	521	131	82	74	118	116	58	80	269	355	95	68	90	46
\$/cct-mi	.56	.39	.12	.11	.10	.18	.19	.12	.09	.20	.21	.15	.15	.37	.22

FIGURE 6.54: 23 NODE NETWORK .7 M 1995 TRAFFIC, 96F FO CABLE

Traffic Factor Mileage Factor	Route											Total	
	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5		22-23
Actual Traffic	162890	359876	224732	151784	258026	919502	762009	753971	720860	397401	380208	361993	469504
UF Ccts Req'd	217186	479835	299642	202379	344035	1226003	1016012	1005294	96106	529868	506944	505324	626006
Initial Fill	271483	599794	374553	252974	430044	1532504	1270015	1256618	120133	662334	633680	636655	762507
Total OF Circuits	1602.07	407.06	216.50	406.84	197.88	1041.60	131.89	295.84	918.09	266.50	215.49	273.65	13882.27
System Mileage	434933	244149	80716	116074	85097	160306	167507	371755	110293	169886	136550	215927	214136
Circuit Miles(000)													8647613
1.7 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing													
First Cost (\$000)	86588	22000	11647	24799	10695	5654	7129	15969	49621	13863	11647	18331	14790
96 fiber FO Cable	5803	1474	781	1662	717	379	478	1072	3325	929	780	1228	991
96f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335
Cable Installation	882	1890	1134	882	1260	4410	3780	3654	504	2016	2016	2688	2394
F.O. Mtr/Repr	4998	3150	1134	1470	840	2940	2520	3654	1680	2016	2016	2688	2394
T/Rx Bldg, Power	2880	1050	750	1050	600	600	600	750	1800	750	750	900	750
N13 Run	21210	46883	29295	19793	33600	119753	99225	98175	9398	51765	49508	49770	61163
GRAND TOTAL - FC	147708	82895	48154	56924	50846	135392	115820	127980	80870	75402	70130	80306	66817
\$ per mile (000)	92	204	223	124	287	1294	678	433	68	294	325	237	317
\$/cct-mi	.34	.34	.60	.49	.60	.84	.69	.34	.73	.44	.51	.37	.41
Annual Cost (\$000)	34909	8870	4696	9998	4312	2279	2874	6446	20005	5589	4695	7390	5963
96 fiber FO Cable	2339	594	315	670	289	153	193	432	1341	375	315	495	400
96f Ca Splicing	10231	2699	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748
Cable Installation	553	1185	711	922	527	1844	1581	2292	1054	1265	1265	1686	1502
F.O. Mtr/Repr	3135	1976	711	922	527	1844	1581	2292	1054	1265	1265	1686	1502
T/Rx Bldg, Power	1138	419	300	419	240	240	240	300	719	300	300	360	300
N13 Run	13304	29407	18375	12415	21075	75114	62238	61579	5894	32469	31053	31218	38364
GRAND TOTAL - AC	65610	46051	26484	27908	28497	83064	70338	75230	35192	42899	40268	44579	49777
\$ per mile (000)	41	111	123	61	144	794	533	254	38	167	187	131	182
\$/cct-mi	.15	.18	.33	.24	.33	.62	.42	.20	.32	.25	.29	.21	.23
4.05 Gbps DIGITAL FO SYSTEM 100 mi Repeater Spacing													
First Cost (\$000)	86588	22000	11647	24799	10695	5654	7129	15969	49621	13863	11647	18331	14790
96 fiber FO Cable	5803	1474	781	1662	717	379	478	1072	3325	929	780	1228	991
96f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335
Cable Installation	1260	1890	1134	882	1260	4410	3780	3654	504	2016	2016	2688	2394
F.O. Mtr/Repr	7140	3150	1134	1470	840	2940	2520	3654	1680	2016	2016	2688	2394
T/Rx Bldg, Power	2880	1050	750	1050	600	600	600	750	1800	750	750	900	750
N13 Run	21210	46883	29295	19793	33600	119753	99225	98175	9398	51765	49508	49770	61163
GRAND TOTAL - FC	150228	82895	49036	57932	51371	135917	115820	126232	81416	75780	70508	80747	87069
\$ per mile (000)	94	204	228	126	260	1299	678	433	69	295	327	238	318
\$/cct-mi	.35	.34	.61	.50	.60	.85	.69	.34	.74	.45	.52	.37	.41
Annual Cost (\$000)	34909	8870	4696	9998	4312	2279	2874	6446	20005	5589	4695	7390	5963
96 fiber FO Cable	2339	594	315	670	289	153	193	432	1341	375	315	495	400
96f Ca Splicing	10231	2699	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748
Cable Installation	790	1185	988	1317	659	2964	2371	2371	395	1383	1383	1383	1581
F.O. Mtr/Repr	4478	1976	988	1317	659	2964	2371	2371	395	1383	1383	1383	1581
T/Rx Bldg, Power	1138	419	300	419	240	240	240	300	719	300	300	360	300
N13 Run	13304	29407	18375	12415	21075	75114	62238	61579	5894	32469	31053	31218	38364
GRAND TOTAL - AC	67191	45051	27037	28540	28826	83393	70338	75388	35535	43136	40505	44856	49935
\$ per mile (000)	42	111	125	62	146	797	533	255	39	168	186	132	162
\$/cct-mi	.15	.18	.33	.25	.34	.62	.42	.20	.32	.25	.30	.21	.23

2000 TRAFFIC, 48F F0 CABLE

23 NODE NETWORK

FIGURE 6.55:

Traffic Factor
Mileage Factor

Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8
Actual Traffic	1909163	1917990	1631808	1061850	1092377	946564	903126	716295	1278462	1939666	2400867	883393	660864	348696	306973
VF Ccts Req'd	2545551	2557321	2175743	1415800	1456503	1262086	1204167	957727	1704616	2586221	3200755	1177857	881152	464928	409297
Initial Fill	-8														
Total VF Circuits	3181938	3196651	2719679	1769749	1820629	1577607	1505209	1197159	2130770	3232776	4000944	1472321	1101440	581160	511622
System Mileage	98.61	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66	681.88	227.92	786.34
Circuit Miles(000)	303899	455144	1693706	1464009	1856525	649918	606366	1301315	2246881	966340	1088617	787188	751051	132457	402306

4.05 Gbps DIGITAL F0 SYSTEM 150 mi Repeater Spacing

First Cost (\$000)	5455	8133	35572	23626	29123	11766	11505	31045	30116	17074	15542	15270	19475	6509	22458
48 fiber F0 Cable	369	550	2406	1598	1970	796	778	2100	2037	1185	1051	1033	1317	440	1519
48f Ca Splicing	1513	2285	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456
Cable Installation	9450	9450	7875	5355	5670	5040	4725	3465	6300	9450	11655	4728	3465	1890	1890
F.O. Mtr/Rcvr	3150	13125	10710	13230	13230	5040	4725	9240	16800	6300	7770	6300	5775	1260	3780
F.O. Line Repeater	450	450	1050	1200	1350	750	750	1800	1800	600	600	900	900	600	1200
I/Rn Bldng, Power	248640	249743	212620	138285	142275	123270	117600	93555	166478	252578	312585	115028	86100	45413	40005
M13 Mun	269027	273731	282413	193878	209771	153187	146465	158123	239934	291892	353813	151724	127983	59722	83307
GRAND TOTAL - FC	2617	1923	453	234	206	372	364	145	228	976	1299	284	188	262	106
\$ per mile (000)	.89	.60	.17	.13	.11	.24	.24	.12	.11	.30	.32	.19	.17	.45	.21
\$/cct-mi															

Annual Cost (\$000)

48 fiber F0 Cable	2199	3279	14341	9525	11741	4743	4638	12516	12142	6884	6266	6156	7851	2624	9054
48f Ca Splicing	149	222	970	644	794	321	314	847	821	466	424	416	531	178	612
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Mtr/Rcvr	5927	4940	3359	3556	3556	3161	2964	2173	3952	5927	7310	2964	2173	1185	1185
F.O. Line Repeater	1976	1976	8233	6718	8298	3161	2964	599	10338	3952	4874	3952	3622	790	2371
I/Rn Bldng, Power	180	180	419	479	539	300	300	599	599	240	240	360	419	240	479
M13 Mun	155957	156648	133301	86738	89241	77320	73763	58681	104421	158427	196066	72150	54005	28485	25093
GRAND TOTAL - AC	166998	169141	166181	112746	120682	91837	87515	87554	139207	177804	216917	89412	72958	34957	43917
\$ per mile (000)	1749	1188	267	136	118	222	217	81	132	595	797	167	107	153	56
\$/cct-mi	.55	.37	.10	.08	.07	.14	.14	.07	.06	.18	.20	.11	.10	.26	.11

6.1 Gbps DIGITAL F0 SYSTEM 150 mi Repeater Spacing

First Cost (\$000)	2728	4066	17786	23626	29123	11766	11505	31045	30116	8537	7771	15270	19475	6509	22458
48 fiber F0 Cable	185	275	1203	1598	1970	796	778	2100	2037	578	526	1033	1317	440	1519
48f Ca Splicing	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456
Cable Installation	10080	10080	8190	5670	5670	5040	5040	3780	6300	10080	11970	5040	3780	2520	2520
F.O. Mtr/Rcvr	3360	3360	13650	11340	13230	5040	5040	10080	16800	6720	7980	6720	6300	1680	5040
F.O. Line Repeater	450	450	1050	1200	1350	750	750	1800	1800	600	600	900	1050	600	1200
I/Rn Bldng, Power	248640	249743	212620	138285	142275	123270	117600	93555	166478	252578	312585	115028	86100	45413	40005
M13 Mun	266955	270229	264264	194823	209771	153187	147095	159278	239934	263827	345741	152459	128823	60772	85197
GRAND TOTAL - FC	2795	1898	424	236	206	372	365	147	228	950	1271	285	189	267	108
\$ per mile (000)	.68	.59	.16	.13	.11	.24	.24	.12	.11	.29	.32	.19	.17	.46	.21
\$/cct-mi															

Annual Cost (\$000)

48 fiber F0 Cable	1100	1639	7171	9525	11741	4743	4638	12516	12142	3442	3133	6156	7851	2624	9054
48f Ca Splicing	74	111	485	644	794	321	314	847	821	233	212	416	531	178	612
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1738	3414	4355	1456	5022
F.O. Mtr/Rcvr	6323	6323	5137	3556	3556	3161	3161	2371	3952	6323	7508	3161	2371	1581	1581
F.O. Line Repeater	2108	2108	8962	7113	8298	3161	3161	6323	10338	4215	5005	4215	3952	1054	3161
I/Rn Bldng, Power	180	180	419	479	539	300	300	599	599	240	240	360	419	240	479
M13 Mun	155957	156648	133301	86738	89241	77320	73763	58681	104421	158427	196066	72150	54005	28485	25093
GRAND TOTAL - AC	166351	167918	159052	113339	120682	91837	87910	88279	139207	174788	213901	89873	73484	35616	45002
\$ per mile (000)	1742	1179	255	137	118	222	218	81	132	585	786	168	108	156	57
\$/cct-mi	.55	.37	.09	.08	.07	.14	.14	.07	.06	.18	.20	.11	.10	.27	.11

FIGURE 6.55: 2000 TRAFFIC, 48F FO CABLE

23 NODE NETWORK

Traffic Factor Mileage Factor	Route											Total
	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-23	23-11
Actual Traffic	390114	861889	538223	363517	617962	2202170	1824980	1805728	172628	951768	910582	1124443
OF Ccts Req'd	520152	1149185	717631	484689	823950	2936226	2433306	2407638	230171	1269010	1214110	1499257
Initial Fill	650190	1436482	897039	605862	1029937	3670283	3041633	3009547	287713	1566263	1517637	1874072
Total OF Circuits	1602.07	407.06	215.50	458.84	197.88	104.60	131.89	295.84	918.09	266.50	245.49	273.65
System Mileage	1041646	584726	193310	277993	203805	383926	401172	890337	264147	406870	327031	512847
Circuit Miles(000)												20710669

4.05 Gbps DIGITAL FO SYSTEM												
150 mi Repeater Spacing												
First Cost (\$000)	45755	11625	6155	13104	5975	7534	16898	26221	7326	6154	9686	7816
48 fiber FO Cable	3095	786	416	886	382	510	1143	1774	496	416	655	529
48F Ca Splicing	25377	6448	3413	7268	3134	1657	4686	14543	4063	3413	5372	4335
Cable Installation	2205	4095	2835	2205	10710	9135	8820	1260	5040	4725	4725	5670
F.O. Rctr/Rcvr	8085	4095	1890	2940	2100	3570	5880	2940	3360	3160	4725	3790
F.O. Line Repeater	1950	750	600	900	600	450	600	1350	600	600	750	600
T/Rx Bldg, Power	50820	112245	70088	47355	80483	266755	237668	235148	123953	118598	119123	146423
N13 Rm	137287	140045	85397	74659	95501	309521	273175	70609	14836	137056	145636	169151
GRAND TOTAL - FC	86	344	396	163	483	2959	1975	923	77	565	428	618
\$ per mile (000)	.13	.24	.44	.27	.47	.81	.65	.31	.27	.42	.28	.33
\$/cct-mi												.24

6.1 Gbps DIGITAL FO SYSTEM												
150 mi Repeater Spacing												
First Cost (\$000)	18447	4687	2481	5283	2376	2409	3037	5813	10571	2963	2481	3151
48 fiber FO Cable	1248	317	168	357	154	163	205	461	715	200	168	213
48F Ca Splicing	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	1748
Cable Installation	1383	2669	1778	1383	1976	6718	9730	5532	790	3161	2964	3556
F.O. Rctr/Rcvr	5071	2569	1185	1844	1317	2239	1910	3688	1844	1976	2964	2371
F.O. Line Repeater	779	300	240	360	240	180	180	240	539	240	300	240
T/Rx Bldg, Power	31676	70405	43962	29703	50482	179864	149074	147494	14127	77748	74389	91842
N13 Rm	69035	83445	51190	41860	57111	192241	160979	166117	34450	88048	83593	103121
GRAND TOTAL - FC	43	205	238	91	292	1038	1221	562	38	343	388	377
\$ per mile (000)	.07	.14	.26	.15	.28	.50	.40	.19	.13	.22	.26	.20
\$/cct-mi												.14

6.1 Gbps DIGITAL FO SYSTEM												
150 mi Repeater Spacing												
First Cost (\$000)	45755	11625	6155	13104	5975	7534	16898	26221	7326	6154	9686	7816
48 fiber FO Cable	3095	786	416	886	382	510	1143	1774	496	416	655	529
48F Ca Splicing	25377	6448	3413	7268	3134	1657	4686	14543	4063	3413	5372	4335
Cable Installation	2520	4410	3150	2520	3780	3780	3150	6300	4410	5040	5040	5670
F.O. Rctr/Rcvr	9240	4410	2100	3360	2520	3780	3150	6300	4410	3360	5040	3790
F.O. Line Repeater	1950	750	600	900	600	450	600	1350	600	600	750	600
T/Rx Bldg, Power	50820	112245	70088	47355	80483	266755	237668	235148	123953	118598	119123	146423
N13 Rm	138757	140675	85922	75394	96351	307172	256828	265204	72709	144666	137581	169151
GRAND TOTAL - FC	87	346	399	164	488	2937	1947	896	79	565	429	618
\$ per mile (000)	.13	.24	.44	.27	.47	.80	.64	.30	.28	.42	.28	.33
\$/cct-mi												.24

6.1 Gbps DIGITAL FO SYSTEM												
150 mi Repeater Spacing												
First Cost (\$000)	18447	4687	2481	5283	2376	2409	3037	5813	10571	2963	2481	3151
48 fiber FO Cable	1248	317	168	357	154	163	205	461	715	200	168	213
48F Ca Splicing	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	1748
Cable Installation	1383	2669	1778	1383	1976	6718	9730	5532	790	3161	2964	3556
F.O. Rctr/Rcvr	5071	2569	1185	1844	1317	2239	1910	3688	1844	1976	2964	2371
F.O. Line Repeater	779	300	240	360	240	180	180	240	539	240	300	240
T/Rx Bldg, Power	31676	70405	43962	29703	50482	179864	149074	147494	14127	77748	74389	91842
N13 Rm	69035	83445	51190	41860	57111	192241	160979	166117	34450	88048	83593	103121
GRAND TOTAL - FC	43	205	238	91	292	1038	1221	562	38	343	388	377
\$ per mile (000)	.07	.14	.26	.15	.28	.50	.40	.19	.13	.22	.26	.20
\$/cct-mi												.14

FIGURE 6.56: 23 NODE NETWORK 2000 TRAFFIC, 96f FO CABLE

Traffic Factor Mileage Factor	23 NODE NETWORK															
Route	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-18	11-4	12-4	12-20	13-8	
Actual Traffic	1909163	1917990	1631808	1061850	1092377	946564	903125	718295	1270462	1939666	2400567	883393	660864	348696	306973	
OF Ccts Req'd	2545551	2557521	2175743	1415800	1456503	1262086	1204167	957727	1704616	2586221	3200755	1177857	881152	464928	409297	
Initial Fill	.8															
Total OF Circuits	3181938	3196651	2719679	1769749	1820629	1577607	1505209	1197159	2130770	3232776	4000944	1472321	1101440	581160	511622	
System Mileage	95.61	142.38	622.76	827.24	1019.72	411.96	402.85	1087.00	1054.49	298.92	272.09	534.66	681.88	227.92	786.34	
Circuit Miles (000)	303899	455144	1693706	1464009	1856525	649918	606366	1301315	2246881	966340	1088617	787188	751051	132457	402306	
4.05 Gbps DIGITAL FO SYSTEM																
150 mi Repeater Spacing																
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	16156	14706	28897	36854	12319	42500	
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	1083	986	1937	2470	826	2848	
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456	
F.O. Mtr/Rcvr	9450	9450	7875	5355	5670	5040	4725	3465	6300	9450	11655	4725	3465	1890	1890	
F.O. Line Repeater	3150	3150	13125	10710	13230	5040	4725	9240	16800	6300	7770	6300	5775	1260	3780	
T/Rm Bldg, Power	450	450	1050	1200	1350	750	750	1500	1500	600	600	900	1050	600	1200	
M13 Num	248640	249743	212520	138285	142275	123270	117600	93555	166478	252578	312585	115028	86100	45413	40005	
GRAND TOTAL - FC	268711	273259	280349	216360	237484	164384	157413	187666	268593	290901	352611	166258	146515	65917	104679	
\$ per mile (000)	2814	1919	450	262	233	399	391	173	255	973	1296	311	215	289	133	
\$/cct-mi	.88	.60	.17	.15	.13	.25	.26	.14	.12	.30	.32	.21	.20	.50	.26	
Annual Cost (\$000)																
96 fiber FO Cable	2081	3103	13570	18026	22220	8977	8778	23686	22978	6514	5929	11650	14858	4966	17134	
FO Splicing	139	208	909	1208	1489	602	588	1587	1540	436	397	781	996	333	1148	
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1736	3414	4355	1456	5022	
F.O. Mtr/Rcvr	5927	5927	4940	3359	3556	3161	2964	2173	3952	5927	7310	2964	2173	1185	1185	
F.O. Line Repeater	1976	1976	8233	6718	8298	3161	2964	8796	10538	3952	4874	3952	3622	790	2371	
T/Rm Bldg, Power	180	180	419	479	539	300	300	599	599	240	240	360	419	240	479	
M13 Num	155957	156648	133301	86738	89241	77320	73763	58681	104421	158427	196066	72150	54005	28485	25093	
GRAND TOTAL - AC	166870	168951	165349	121810	131855	96151	91929	99465	150761	177404	216553	95270	80429	37455	52433	
\$ per mile (000)	1747	1187	266	147	129	233	228	92	143	593	796	178	118	164	67	
\$/cct-mi	.55	.37	.10	.08	.07	.15	.15	.08	.07	.16	.20	.12	.11	.28	.13	
8.1 Gbps DIGITAL FO SYSTEM																
150 mi Repeater Spacing																
First Cost (\$000)	5162	7695	33659	44711	55114	22266	21773	58750	56993	16156	14706	28897	36854	12319	42500	
96 fiber FO Cable	346	516	2256	2996	3693	1492	1459	3937	3819	1083	986	1937	2470	826	2848	
Cable Installation	1513	2255	9865	13103	16152	6526	6381	17218	16703	4735	4310	8469	10801	3610	12456	
F.O. Mtr/Rcvr	10080	10080	8190	5670	5670	5040	5040	3780	6300	10080	11970	5040	3780	2520	2520	
F.O. Line Repeater	3360	3360	13650	11340	13230	5040	5040	10080	16800	6720	7980	6720	6300	1680	5040	
T/Rm Bldg, Power	450	450	1050	1200	1350	750	750	1500	1500	600	600	900	1050	600	1200	
M13 Num	248640	249743	212520	138285	142275	123270	117600	93555	166478	252578	312585	115028	86100	45413	40005	
GRAND TOTAL - FC	269551	274099	281189	217305	237484	164384	158043	188821	268593	291951	353134	166990	147355	66967	106569	
\$ per mile (000)	2822	1925	452	263	233	399	392	174	255	977	1298	312	216	294	136	
\$/cct-mi	.89	.60	.17	.15	.13	.25	.26	.15	.12	.30	.32	.21	.20	.51	.26	
Annual Cost (\$000)																
96 fiber FO Cable	2081	3103	13570	18026	22220	8977	8778	23686	22978	6514	5929	11650	14858	4966	17134	
FO Splicing	139	208	909	1208	1489	602	588	1587	1540	436	397	781	996	333	1148	
Cable Installation	610	909	3977	5283	6512	2631	2573	6942	6734	1909	1736	3414	4355	1456	5022	
F.O. Mtr/Rcvr	6323	6323	5137	3556	3556	3161	3161	2371	3952	6323	7508	3161	2371	1581	1581	
F.O. Line Repeater	2108	2108	8562	7113	8298	3161	3161	6323	10538	4215	5005	4215	3952	1054	3161	
T/Rm Bldg, Power	180	180	419	479	539	300	300	599	599	240	240	360	419	240	479	
M13 Num	155957	156648	133301	86738	89241	77320	73763	58681	104421	158427	196066	72150	54005	28485	25093	
GRAND TOTAL - AC	167397	169478	165876	122403	131855	96151	92324	100189	150761	178063	216883	95731	80956	38113	53618	
\$ per mile (000)	1753	1190	266	148	129	233	229	92	143	596	797	179	119	167	68	
\$/cct-mi	.55	.37	.10	.08	.07	.15	.15	.08	.07	.16	.20	.12	.11	.29	.13	

FIGURE 6.56: 23 NODE NETWORK

Traffic Factor	3.2775													
Mileage Factor	1.15													
Route	13-14	14-10	15-1	15-16	16-17	17-18	17-19	19-2	20-21	21-5	22-5	22-23	23-11	Total
Actual Traffic	390114	861889	538223	363517	617962	2202170	1824980	1805728	172628	951758	910582	914857	1124443	
VF Ccts Req'd	520152	1149186	717631	484689	823950	2936226	2433306	2407638	230171	1269010	1214110	1219810	1499257	
Initial Fill														
Total VF Circuits	650190	1436482	897039	605862	1029937	3670283	3041633	3009547	287713	1586263	1517637	1524762	1874072	51131076
System Mileage	1602.07	407.05	216.50	458.84	197.88	104.60	131.89	295.84	918.09	256.50	215.49	339.16	273.65	13882.27
Circuit Miles(000)	1041646	584726	193310	277993	203805	383926	401172	890337	264147	406870	327031	517135	512847	20710669
4.05 Gbps DIGITAL FO SYSTEM														
150 mi Repeater Spacing														
First Cost (\$000)	86588	22000	11647	24799	10695	5654	7129	15989	49621	13863	11647	18331	14790	750309
96 fiber FO Cable	5803	1474	781	1662	717	379	478	1072	3325	929	780	1228	991	50282
96f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895
Cable Installation	2205	4095	2835	2205	3160	10710	9135	8820	1260	5040	5040	5040	5670	163060
F.O. Rmtr/Rcvr	8085	4095	1890	2940	2100	3570	3045	5880	2940	3360	3150	4725	3780	159415
F.O. Line Repeater	1950	750	600	900	600	450	450	600	1350	600	600	750	600	24150
T/Rm Bldg, Power	50820	112245	70088	47355	80483	286755	237668	235148	22523	123953	118598	119123	146423	3995280
N13 Num	180828	151108	91254	87129	100879	309174	259993	272195	95561	151808	142913	154254	176589	5354781
GRAND TOTAL - FC	113	371	423	190	510	2956	1971	920	104	592	663	455	645	386
\$ per mile (000)	.17	.26	.47	.31	.49	.81	.65	.31	.36	.37	.44	.30	.34	.26
\$/cct-mi														
Annual Cost (\$000)	34909	8870	4696	9998	4312	2279	2874	6446	20005	5589	4695	7390	5963	302497
96 fiber FO Cable	2339	594	315	670	289	153	193	432	1341	375	315	495	400	20222
96f Ca Splicing	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	88654
Cable Installation	1383	2569	1778	1383	1976	6718	5730	5532	790	3161	2964	2964	3556	97210
F.O. Rmtr/Rcvr	5071	2569	1186	1844	1317	2239	1910	3688	1844	2108	1976	2964	2371	100305
F.O. Line Repeater	779	300	240	360	240	180	180	240	539	240	240	300	240	9647
T/Rm Bldg, Power	31876	70405	43962	29703	50482	179864	149074	147494	14137	77748	74389	74718	91842	2505979
N13 Num	86589	87905	53552	46888	59879	192101	160803	165722	44510	90858	85955	90997	106119	3124563
GRAND TOTAL - AC	54	216	249	102	303	1836	1219	560	48	354	399	268	388	225
\$ per mile (000)	.08	.15	.28	.17	.29	.50	.40	.19	.17	.22	.26	.18	.21	.15
\$/cct-mi														
8.1 Gbps DIGITAL FO SYSTEM														
150 mi Repeater Spacing														
First Cost (\$000)	86588	22000	11647	24799	10695	5654	7129	15989	49621	13863	11647	18331	14790	750309
96 fiber FO Cable	5803	1474	781	1662	717	379	478	1072	3325	929	780	1228	991	50282
96f Ca Splicing	25377	6448	3413	7268	3134	1657	2089	4686	14543	4063	3413	5372	4335	219895
Cable Installation	2520	4110	3150	2520	3160	11340	9450	9450	1890	5040	5040	5040	5670	163060
F.O. Rmtr/Rcvr	9240	4110	2100	3360	2520	3780	3150	6300	4410	3360	3360	5040	3780	111150
F.O. Line Repeater	1950	750	600	900	600	450	450	600	1350	600	600	750	600	24150
T/Rm Bldg, Power	50820	112245	70088	47355	80483	286755	237668	235148	22523	123953	118598	119123	146423	3995280
N13 Num	182298	151738	91779	87854	101929	310014	260413	273245	97661	151808	143438	154884	176589	5376096
GRAND TOTAL - FC	114	373	426	191	515	2964	1974	924	106	592	666	457	645	387
\$ per mile (000)	.18	.26	.47	.32	.50	.81	.65	.31	.37	.37	.44	.30	.34	.26
\$/cct-mi														
Annual Cost (\$000)	34909	8870	4696	9998	4312	2279	2874	6446	20005	5589	4695	7390	5963	302497
96 fiber FO Cable	2339	594	315	670	289	153	193	432	1341	375	315	495	400	20222
96f Ca Splicing	10231	2599	1376	2930	1264	668	842	1889	5863	1638	1376	2166	1748	88654
Cable Installation	1581	2766	1976	1581	2371	7113	5927	5927	1185	3161	3161	3161	3576	107532
F.O. Rmtr/Rcvr	5796	2766	1317	2108	1581	2371	1976	3952	2766	2108	2108	2108	2371	107532
F.O. Line Repeater	779	300	240	360	240	180	180	240	539	240	240	300	240	9647
T/Rm Bldg, Power	31876	70405	43962	29703	50482	179864	149074	147494	14137	77748	74389	74718	91842	2505979
N13 Num	87511	88300	53681	47349	60580	192628	161066	166380	45827	90858	86284	91392	106119	3137933
GRAND TOTAL - AC	55	217	250	103	306	1941	1221	562	50	354	400	269	388	226
\$ per mile (000)	.08	.15	.28	.17	.30	.50	.40	.19	.17	.22	.26	.18	.21	.15
\$/cct-mi														

EXHIBIT 6.57: 11 NODE NETWORK - COST SUMMARY

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
48f FO CA	405 mbps	405 mbps	810 mbps	1.7 gbps	1.7gbps	1.7gbps	4.05 gbps
FC (\$000)	1573060	1775472	1663471	1608794	2190926	2814760	3148993
\$000/mi	215	243	227	220	300	385	430
\$/cct-mi	.50	.47	.26	.21	.20	.20	.17
\$/cct	287.37	269.11	151.28	121.88	116.18	114.82	99.61
AC (\$000)	759649	866629	898593	906788	1251447	1613237	1873750
\$000/mi	104	118	123	124	171	221	256
\$/cct-mi	.24	.23	.14	.12	.12	.11	.10
\$/cct	138.78	131.35	81.72	68.70	66.36	65.81	59.27
48f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
FC (\$000)	1566397	1445271	1513826	2005121	2524395	3056944	
\$000/mi	214	198	207	274	345	418	
\$/cct-mi	.41	.23	.20	.18	.18	.17	
\$/cct	237.42	131.44	114.68	106.33	102.98	96.70	
AC (\$000)	772048	811710	870034	1178194	1497598	1838827	
\$000/mi	106	111	119	161	205	251	
\$/cct-mi	.20	.13	.11	.11	.11	.10	
\$/cct	117.02	73.82	65.91	62.48	61.09	58.17	
96f FO CA	405 mbps	810 mbps	1.7 gbps	1.7gbps	1.7gbps	4.05 gbps	
FC (\$000)	1874342	1690397	1705789	2249753	2881267	3245987	
\$000/mi	256	231	233	308	394	444	
\$/cct-mi	.49	.27	.22	.21	.20	.18	
\$/cct	284.09	153.73	129.23	119.30	117.53	102.68	
AC (\$000)	906490	909449	945892	1275164	1640050	1912854	
\$000/mi	124	124	129	174	224	261	
\$/cct-mi	.24	.14	.12	.12	.12	.10	
\$/cct	137.40	82.71	71.66	67.62	66.90	60.51	
96f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
FC (\$000)	1642084	1586672	1712635	2203930	2695067	3255752	
\$000/mi	224	217	234	301	368	445	
\$/cct-mi	.43	.25	.22	.20	.19	.18	
\$/cct	248.89	144.29	129.74	116.87	109.94	102.99	
AC (\$000)	802562	868718	950187	1258346	1566407	1918979	
\$000/mi	110	119	130	172	214	262	
\$/cct-mi	.21	.14	.12	.12	.11	.11	
\$/cct	121.64	79.00	71.98	66.73	63.90	60.70	

EXHIBIT 6.58

FIRST COST DISTRIBUTION - 11 NODE NETWORK

<u>11 Node Network</u>	<u>M13 Mux</u>	<u>Electronics</u>	<u>Structures</u>	<u>FO Cable</u>
<u>1983 Traffic</u>				
405mbps FO System (48f)	15.5 %	20.1 %	3.1 %	61.3 %
<u>1985 Traffic</u>				
405mbps FO System (48f)	16.6	21.4	2.7	59.3
565mbps FO System (48f)	18.8	21.3	3.1	56.8
405mbps FO System (96f)	15.7	20.2	2.6	61.5
565mbps FO System (96f)	17.9	20.4	2.9	58.8
<u>1990 Traffic</u>				
810mbps FO System (48f)	51.7	9.5	1.6	37.2
1.7Gbps FO System (48f)	59.5	11.3	1.8	27.4
810mbps FO System (96f)	50.8	9.4	1.6	38.2
1.7Gbps FO System (96f)	54.1	10.3	1.7	33.9
<u>1995 Traffic</u>				
1.7Gbps FO System (48f)	67.3	7.7	.7	24.3
4.05Gbps FO System (48f)	73.5	8.8	.8	16.9
1.7Gbps FO System (96f)	65.5	7.5	.7	26.3
4.05Gbps FO System (96f)	66.9	8.0	.7	24.4
<u>1995 Traffic + 30 %</u>				
1.7Gbps FO System (48f)	68.0	7.8	.6	23.6
4.05Gbps FO System (48f)	75.9	9.0	.6	14.5
1.7Gbps FO System (96f)	66.6	7.6	.5	25.3
4.05Gbps FO System (96f)	71.0	8.4	.6	20.0
<u>1995 Traffic - 30 %</u>				
1.7Gbps FO System (48f)	64.1	7.5	1.0	27.4
4.05Gbps FO System (48f)	68.2	8.4	1.0	22.4
1.7Gbps FO System (96f)	60.5	7.1	.9	31.5
4.05Gbps FO System (96f)	60.2	7.5	.9	31.4
<u>2000 Traffic</u>				
1.7Gbps FO System (48f)	78.4	7.2	.4	14.0
4.05Gbps FO System (48f)	80.8	7.7	.4	11.1
1.7Gbps FO System (96f)	76.0	7.0	.4	16.6
4.05Gbps FO System (96f)	75.8	7.3	.4	16.5

EXHIBIT 6.59

ANNUAL COST DISTRIBUTION - 11 NODE NETWORK

<u>11 Node Network</u>	<u>M13 Mux</u>	<u>Electronics</u>	<u>Structures</u>	<u>F0 Cable</u>
<u>1983 Traffic</u>				
405mbps F0 System (48f)	20.2 %	26.1 %	2.5 %	51.2 %
<u>1985 Traffic</u>				
405mbps F0 System (48f)	21.4	27.4	2.2	49.0
565mbps F0 System (48f)	23.9	27.1	2.5	46.5
405mbps F0 System (96f)	20.5	26.2	2.1	51.2
565mbps F0 System (96f)	23.1	26.0	2.4	48.5
<u>1990 Traffic</u>				
810mbps F0 System (48f)	60.0	11.0	1.2	27.8
1.7Gbps F0 System (48f)	66.4	12.6	1.3	19.7
810mbps F0 System (96f)	59.2	10.9	1.2	28.7
1.7Gbps F0 System (96f)	62.0	11.8	1.2	25.0
<u>1995 Traffic</u>				
1.7Gbps F0 System (48f)	73.9	8.5	.5	17.1
4.05Gbps F0 System (48f)	78.5	9.4	.5	11.6
1.7Gbps F0 System (96f)	72.5	8.3	.5	18.7
4.05Gbps F0 System (96f)	73.5	8.8	.5	17.2
<u>1995 Traffic + 30 %</u>				
1.7Gbps F0 System (48f)	74.4	8.6	.4	16.6
4.05Gbps F0 System (48f)	80.2	9.5	.4	9.9
1.7Gbps F0 System (96f)	73.2	8.4	.4	18.0
4.05Gbps F0 System (96f)	76.7	9.1	.4	13.8
<u>1995 Traffic - 30 %</u>				
1.7Gbps F0 System (48f)	71.3	8.4	.7	19.6
4.05Gbps F0 System (48f)	74.4	9.2	.7	15.7
1.7Gbps F0 System (96f)	68.4	8.0	.7	22.9
4.05Gbps F0 System (96f)	68.1	8.4	.7	22.8
<u>2000 Traffic</u>				
1.7Gbps F0 System (48f)	82.7	7.6	.2	9.5
4.05Gbps F0 System (48f)	84.2	8.1	.3	7.4
1.7Gbps F0 System (96f)	81.1	7.4	.2	11.3
4.05Gbps F0 System (96f)	80.8	7.7	.2	11.3

EXHIBIT 6.60 A: 11 NODE NETWORK

TOTAL COST BREAKDOWN

48f FO CABLE

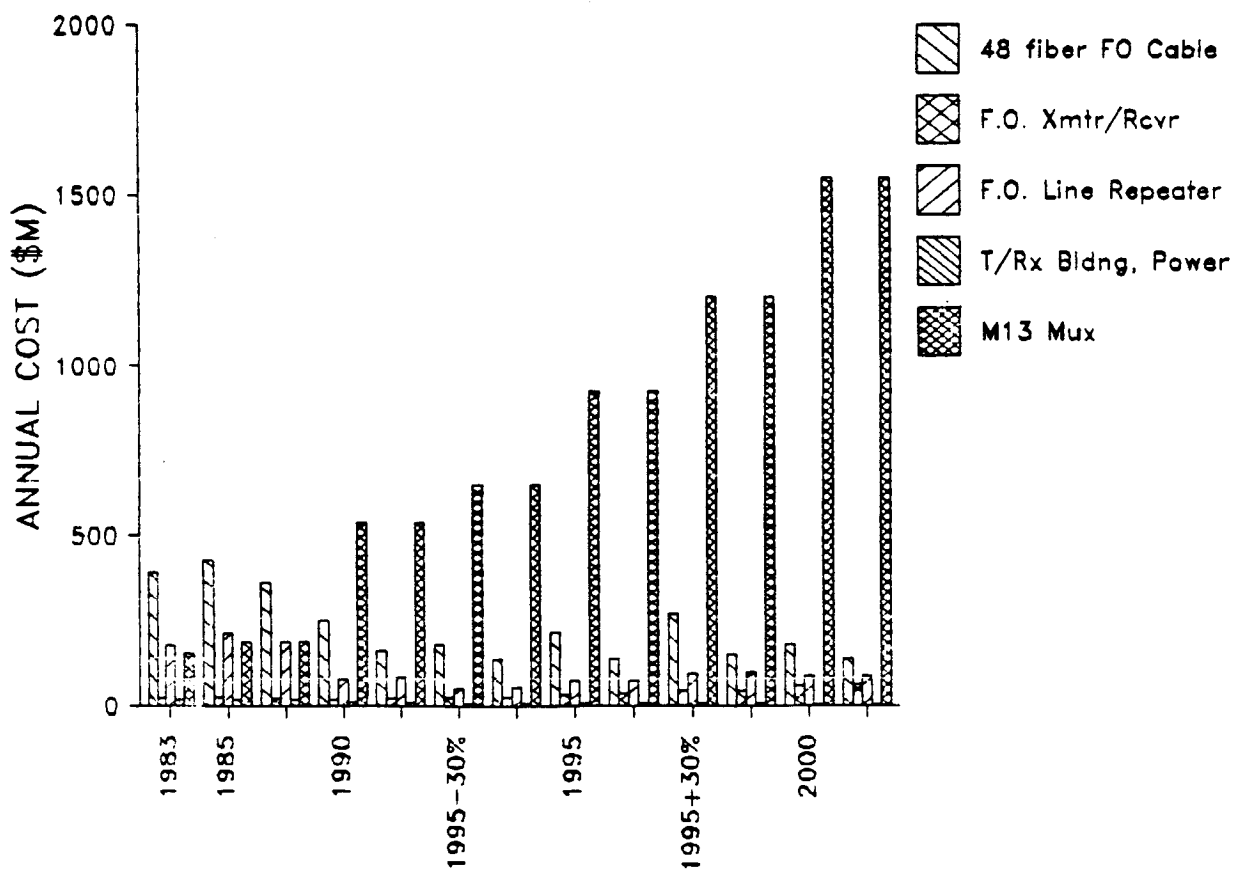
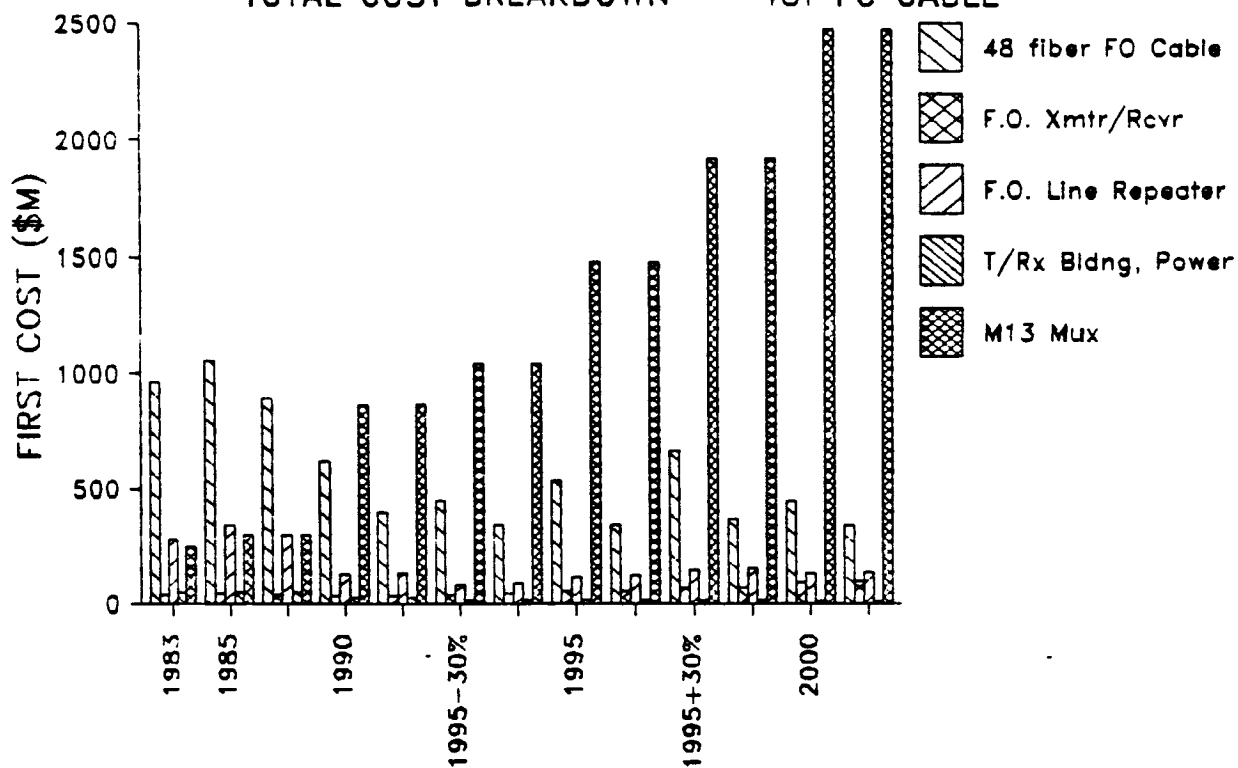


EXHIBIT 6.60 B: 11 NODE NETWORK

TOTAL COST BREAKDOWN

96f FO CABLE

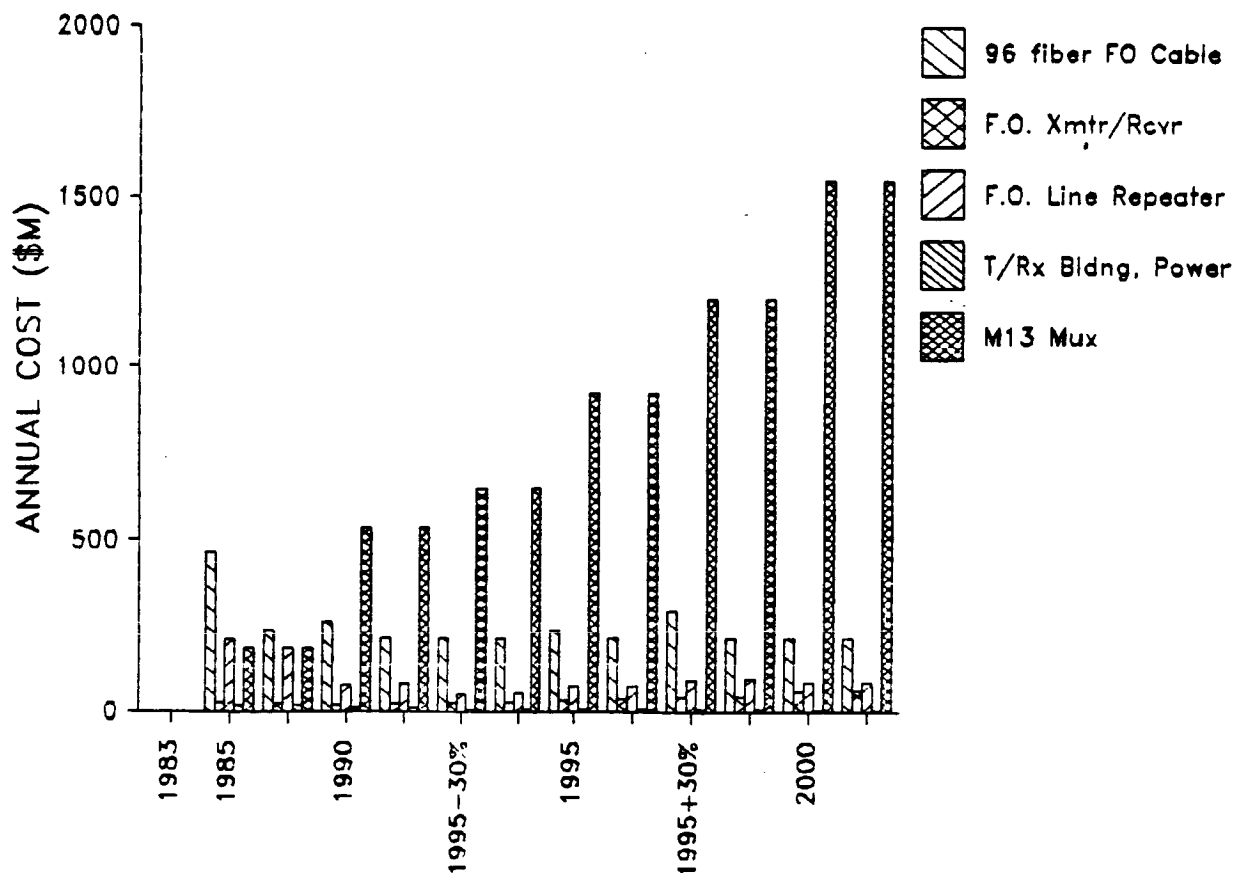
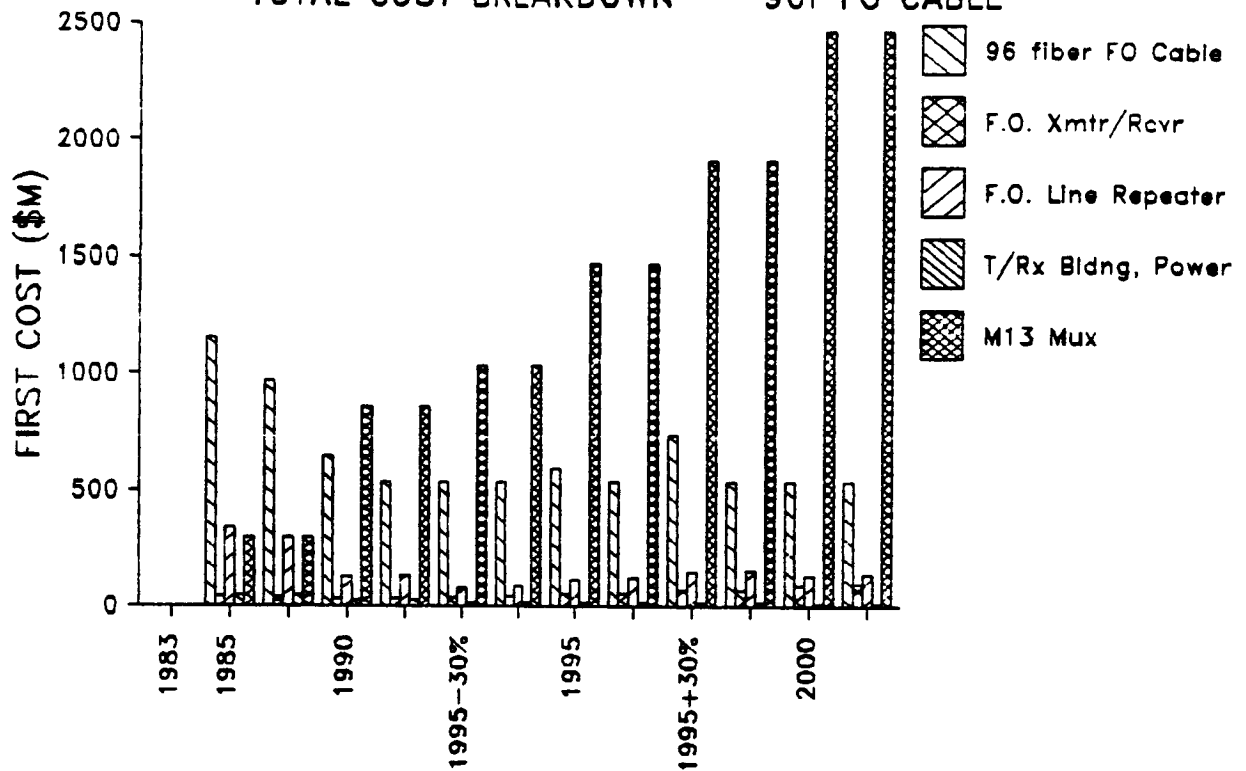


EXHIBIT 6.60 C: 11 NODE NETWORK

TOTAL COST PER CIRCUIT

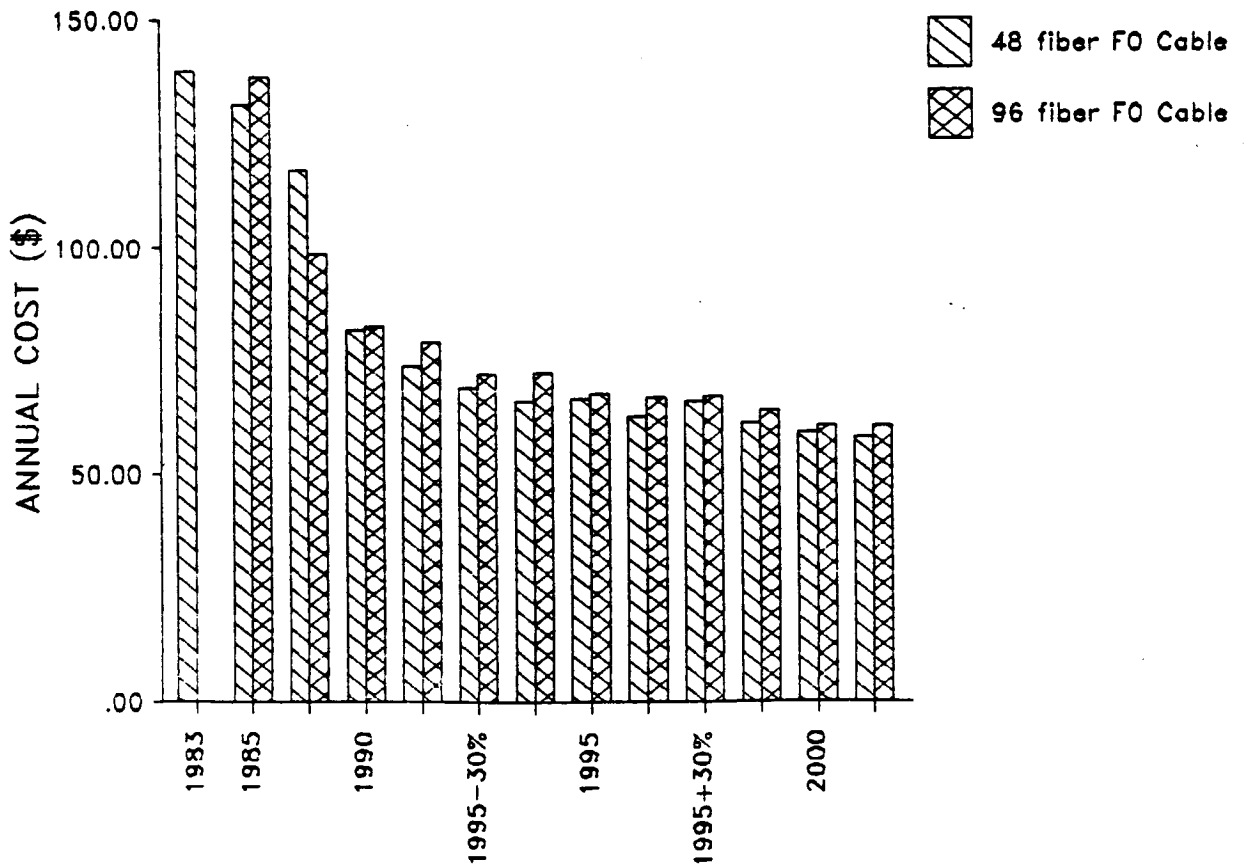
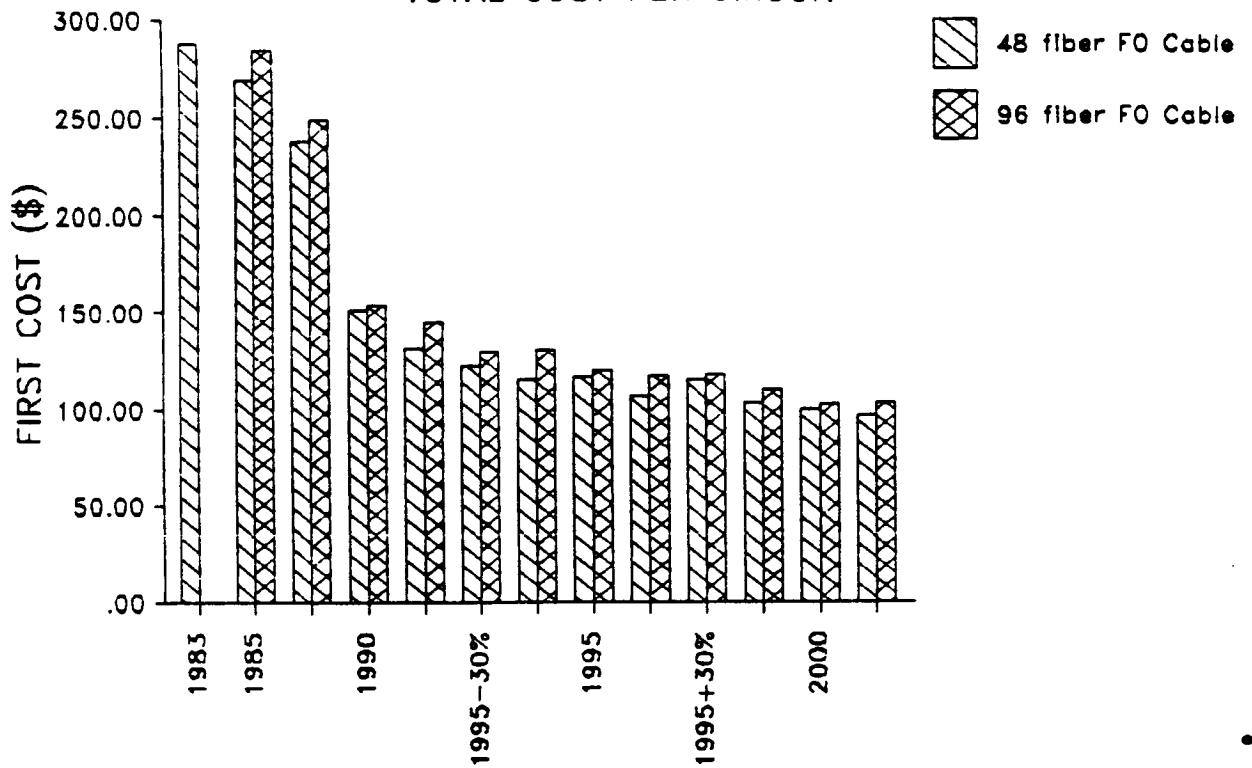


EXHIBIT 6.61: 15 NODE NETWORK - COST SUMMARY

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
48f FD CA	405 mbps	405 mbps	810 mbps	1.7 gbps	1.7gbps	1.7gbps	4.05 gbps
FC (\$000)	1867561	2157249	1985782	1992588	2558398	3201648	3632044
\$000/mi	141	163	150	150	193	242	274
\$/cct-mi	.55	.53	.29	.24	.22	.21	.19
\$/cct	315.29	302.17	166.89	139.50	125.38	120.69	106.17
AC (\$000)	888873	1033326	1048135	1083221	1430262	1808879	2118711
\$000/mi	67	78	79	82	108	136	160
\$/cct-mi	.26	.25	.15	.13	.12	.12	.11
\$/cct	150.06	144.74	88.09	75.84	70.09	68.19	61.93
48f FD CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
FC (\$000)	1907612	1815342	1906314	2441027	2966524	3573534	
\$000/mi	144	137	144	184	224	270	
\$/cct-mi	.47	.27	.23	.21	.19	.18	
\$/cct	267.20	152.56	133.46	119.63	111.83	104.46	
AC (\$000)	921297	981029	1051921	1387314	1716274	2099239	
\$000/mi	70	74	79	105	129	158	
\$/cct-mi	.22	.14	.13	.12	.11	.11	
\$/cct	129.05	82.45	73.64	67.99	64.70	61.36	
96f FD CA	405 mbps	810 mbps	1.7 gbps	1.7gbps	1.7gbps	4.05 gbps	
FC (\$000)	2367824	2205472	2251015	2787267	3423586	3915400	
\$000/mi	179	166	170	210	258	295	
\$/cct-mi	.58	.32	.27	.24	.22	.20	
\$/cct	331.66	185.35	157.59	136.59	129.06	114.45	
AC (\$000)	1118222	1136706	1187409	1522533	1898356	2232949	
\$000/mi	84	86	90	115	143	168	
\$/cct-mi	.27	.17	.14	.13	.12	.11	
\$/cct	156.63	95.53	83.13	74.61	71.56	65.27	
96f FD CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
FC (\$000)	2059501	2133990	2266555	2801268	3323853	3933775	
\$000/mi	155	161	171	211	251	297	
\$/cct-mi	.50	.31	.28	.24	.22	.20	
\$/cct	288.47	179.34	158.68	137.28	125.30	114.99	
AC (\$000)	982533	1109496	1197157	1532550	1860336	2244475	
\$000/mi	74	84	90	116	140	169	
\$/cct-mi	.24	.16	.15	.13	.12	.11	
\$/cct	137.62	93.24	83.81	75.10	70.13	65.61	

EXHIBIT 6.62

FIRST COST DISTRIBUTION - 15 NODE NETWORK

<u>15 Node Network</u>	<u>M13 Mux</u>	<u>Electronics</u>	<u>Structures</u>	<u>F0 Cable</u>
<u>1983 Traffic</u>				
405mbps F0 System (48f)	14.2 %	18.4 %	4.6 %	62.8 %
<u>1985 Traffic</u>				
405mbps F0 System (48f)	14.8	19.1	4.0	62.1
565mbps F0 System (48f)	16.7	19.0	4.5	59.8
405mbps F0 System (96f)	13.5	17.4	3.7	65.4
565mbps F0 System (96f)	15.5	17.6	4.2	62.7
<u>1990 Traffic</u>				
810mbps F0 System (48f)	46.8	8.8	2.4	42.0
1.7Gbps F0 System (48f)	51.2	10.1	2.6	36.1
810mbps F0 System (96f)	42.2	8.0	2.1	47.7
1.7Gbps F0 System (96f)	43.6	8.6	2.2	45.6
<u>1995 Traffic</u>				
1.7Gbps F0 System (48f)	62.3	7.3	1.1	29.3
4.05Gbps F0 System (48f)	65.3	8.4	1.1	25.2
1.7Gbps F0 System (96f)	57.2	6.7	1.0	35.1
4.05Gbps F0 System (96f)	56.9	7.3	1.0	34.8
<u>1995 Traffic + 30 %</u>				
1.7Gbps F0 System (48f)	64.7	7.5	.9	26.9
4.05Gbps F0 System (48f)	69.9	8.4	.9	20.8
1.7Gbps F0 System (96f)	60.5	7.0	.8	31.7
4.05Gbps F0 System (96f)	62.4	7.5	.8	29.3
<u>1995 Traffic - 30 %</u>				
1.7Gbps F0 System (48f)	56.0	6.7	1.4	35.9
4.05Gbps F0 System (48f)	58.6	7.8	1.4	32.2
1.7Gbps F0 System (96f)	49.6	5.9	1.2	43.3
4.05Gbps F0 System (96f)	49.2	6.6	1.2	43.0
<u>2000 Traffic</u>				
1.7Gbps F0 System (48f)	73.6	6.8	.6	19.0
4.05Gbps F0 System (48f)	74.8	7.4	.6	17.2
1.7Gbps F0 System (96f)	68.3	6.3	.5	24.9
4.05Gbps F0 System (96f)	68.0	6.8	.5	24.7

EXHIBIT 6.63

ANNUAL COST DISTRIBUTION - 15 NODE NETWORK

<u>15 Node Network</u>	<u>M13 Mux</u>	<u>Electronics</u>	<u>Structures</u>	<u>FO Cable</u>
<u>1983 Traffic</u>				
405mbps FO System (48f)	18.7 %	24.2 %	3.9 %	53.2 %
<u>1985 Traffic</u>				
405mbps FO System (48f)	19.4	25.0	3.4	52.2
565mbps FO System (48f)	21.7	24.6	3.8	49.9
405mbps FO System (96f)	17.9	23.1	3.1	55.9
565mbps FO System (96f)	20.4	23.1	3.5	53.0
<u>1990 Traffic</u>				
810mbps FO System (48f)	55.6	10.5	1.8	32.1
1.7Gbps FO System (48f)	59.5	11.7	1.9	26.9
810mbps FO System (96f)	51.4	9.7	1.6	37.3
1.7Gbps FO System (96f)	52.6	10.3	1.7	35.4
<u>1995 Traffic</u>				
1.7Gbps FO System (48f)	69.9	8.1	.8	21.2
4.05Gbps FO System (48f)	72.1	9.3	.8	17.8
1.7Gbps FO System (96f)	65.8	7.6	.7	25.9
4.05Gbps FO System (96f)	65.3	8.4	.7	25.6
<u>1995 Traffic + 30 %</u>				
1.7Gbps FO System (48f)	71.9	8.3	.6	19.2
4.05Gbps FO System (48f)	75.8	9.1	.6	14.5
1.7Gbps FO System (96f)	68.5	7.9	.6	23.0
4.05Gbps FO System (96f)	69.9	8.4	.6	21.1
<u>1995 Traffic - 30 %</u>				
1.7Gbps FO System (48f)	64.7	7.7	1.0	26.6
4.05Gbps FO System (48f)	66.6	8.9	1.0	23.5
1.7Gbps FO System (96f)	59.0	7.0	.9	33.1
4.05Gbps FO System (96f)	58.5	7.8	.9	32.8
<u>2000 Traffic</u>				
1.7Gbps FO System (48f)	79.1	7.3	.4	13.2
4.05Gbps FO System (48f)	79.9	8.0	.4	11.7
1.7Gbps FO System (96f)	75.0	7.0	.4	17.6
4.05Gbps FO System (96f)	74.7	7.4	.4	17.5

EXHIBIT 6.64 A: 15 NODE NETWORK

TOTAL COST BREAKDOWN

48f FO CABLE

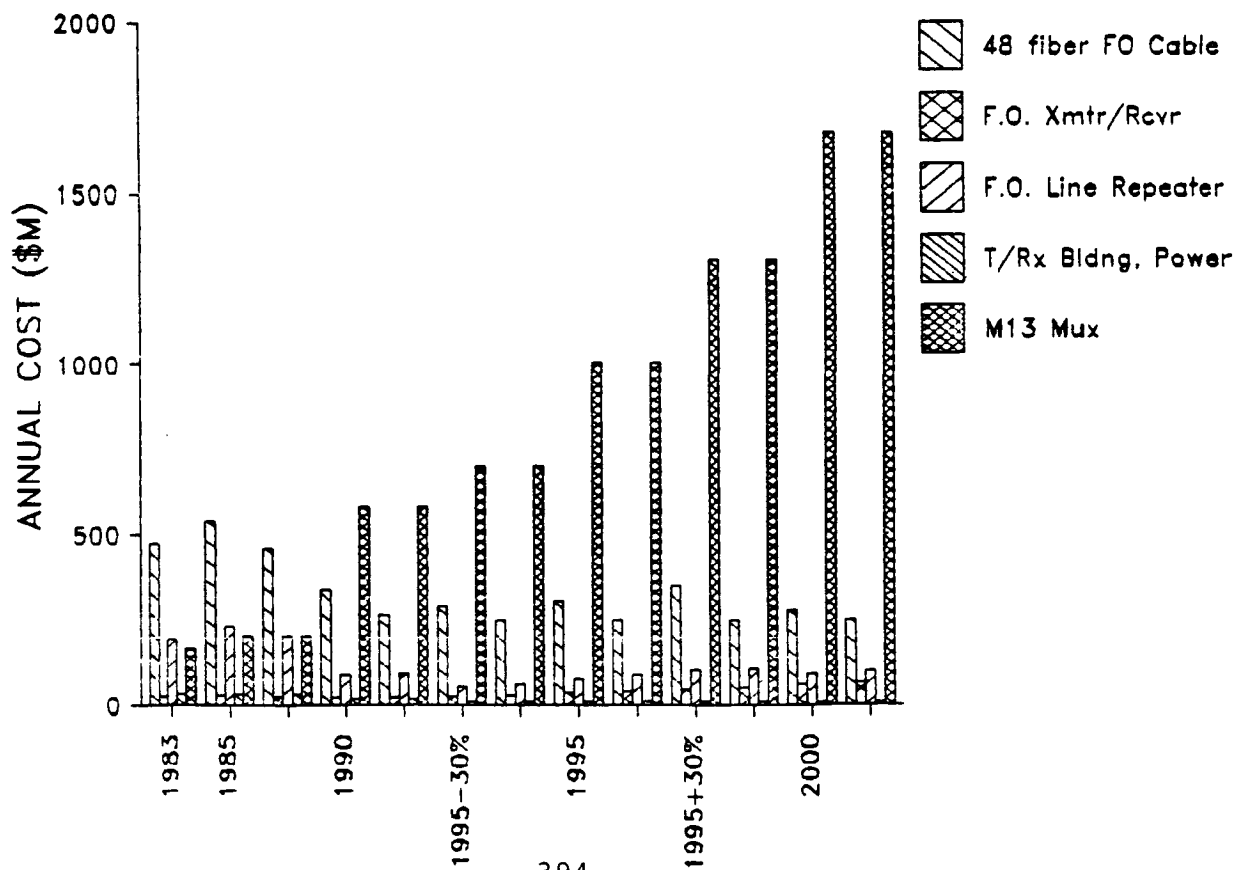
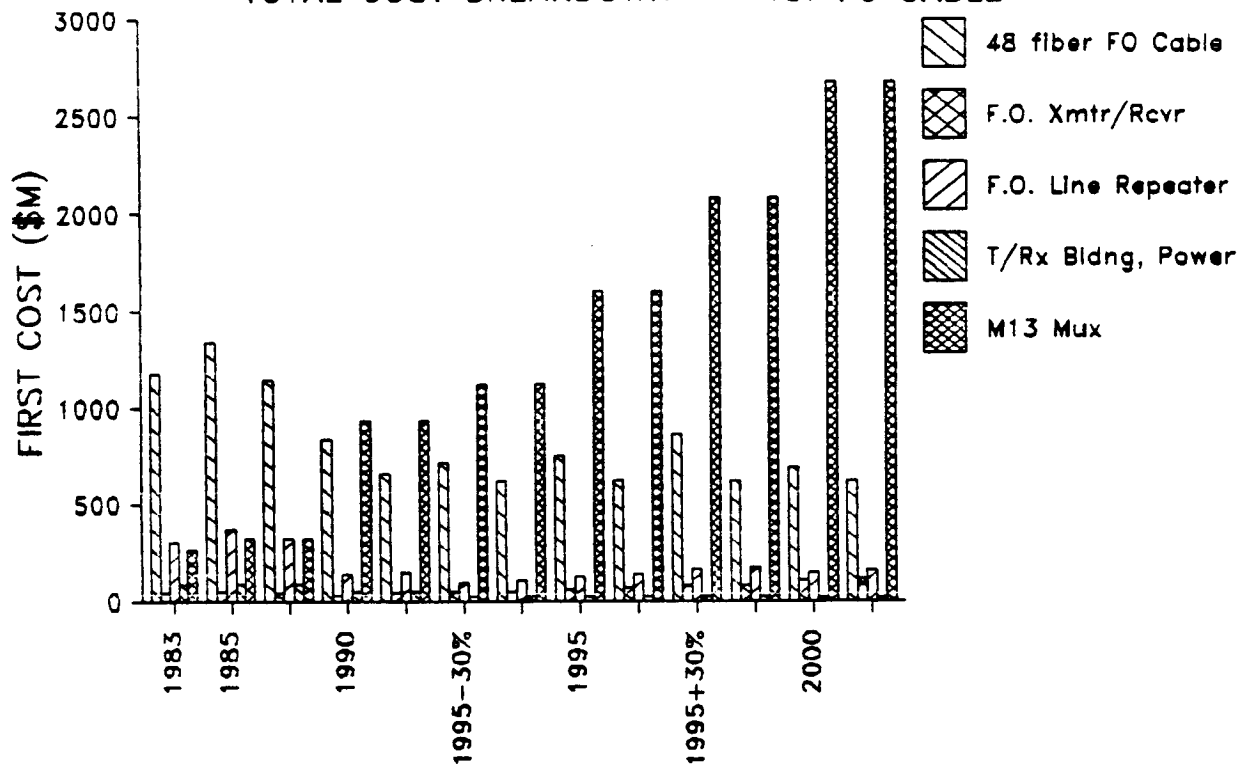


EXHIBIT 6.64 B: 15 NODE NETWORK

TOTAL COST BREAKDOWN

96f FO CABLE

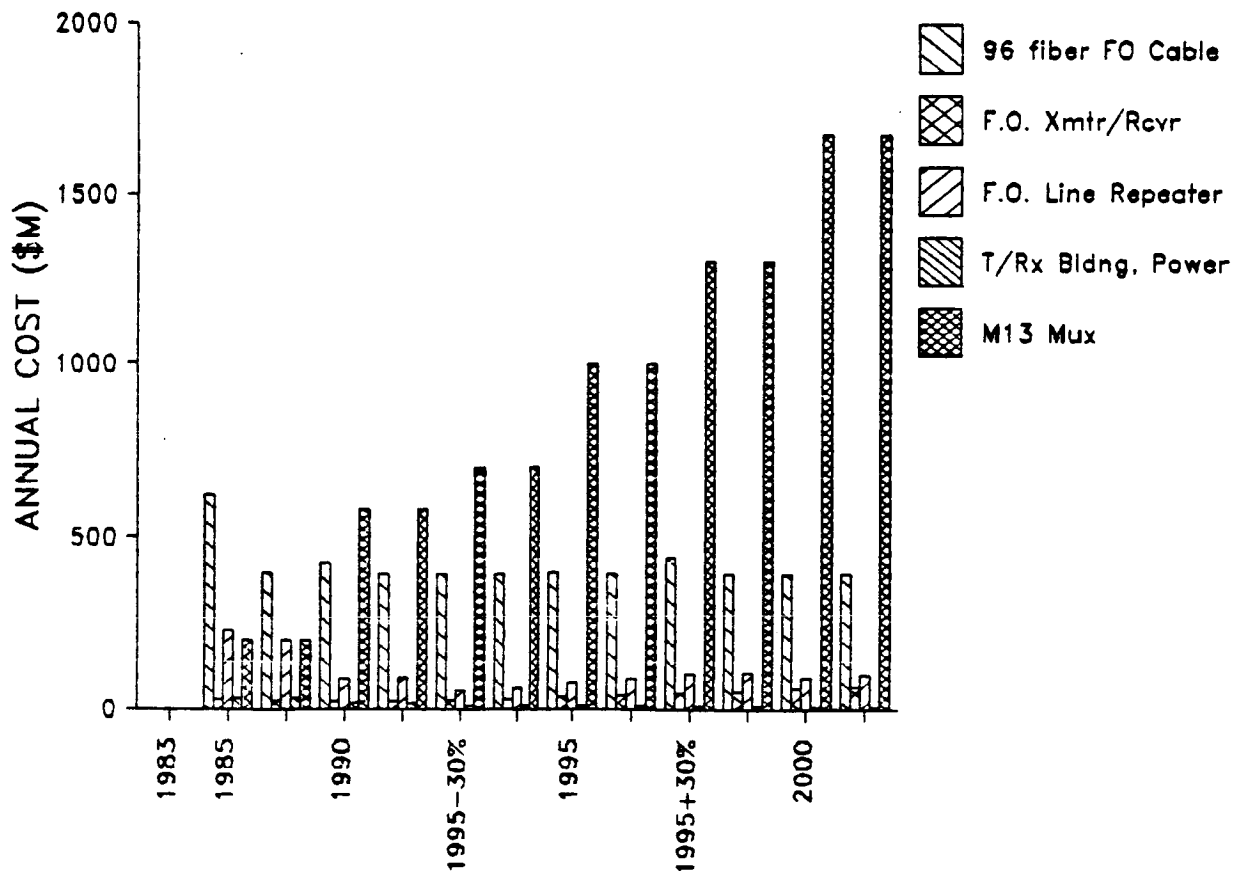
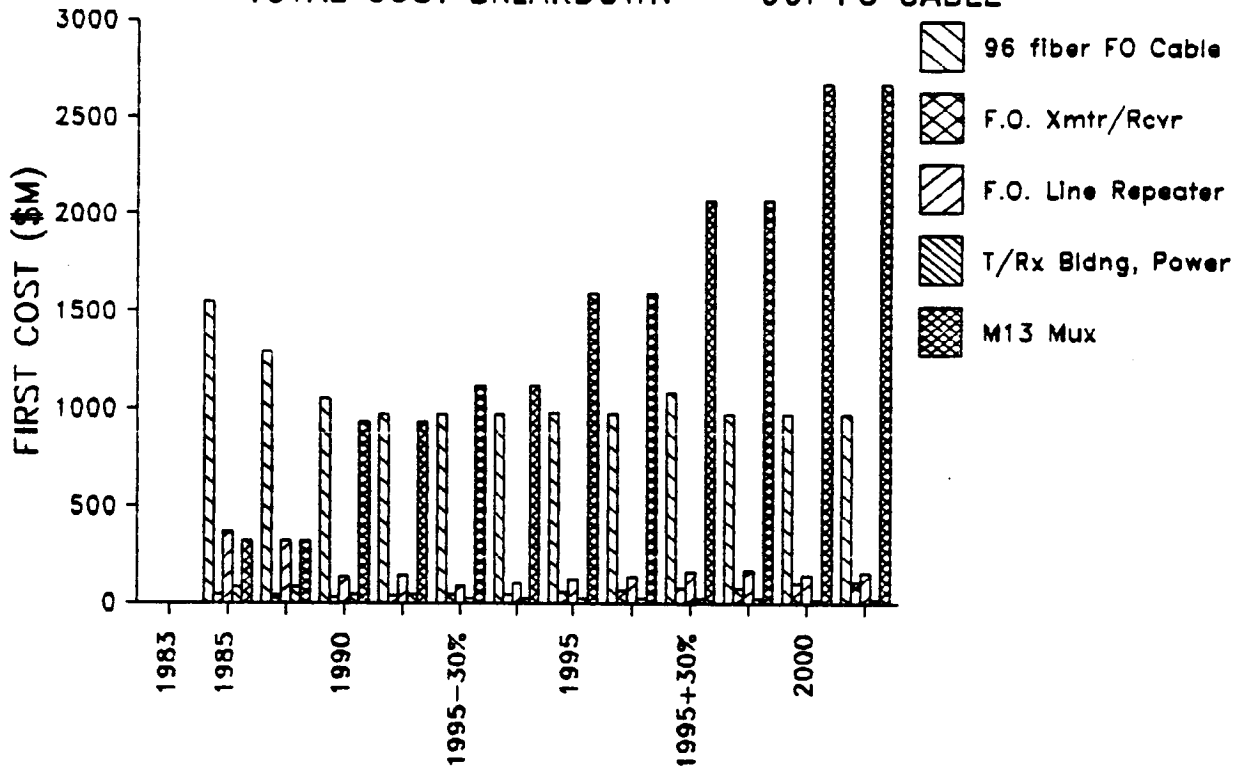


EXHIBIT 6.64 C: 15 NODE NETWORK

TOTAL COST PER CIRCUIT

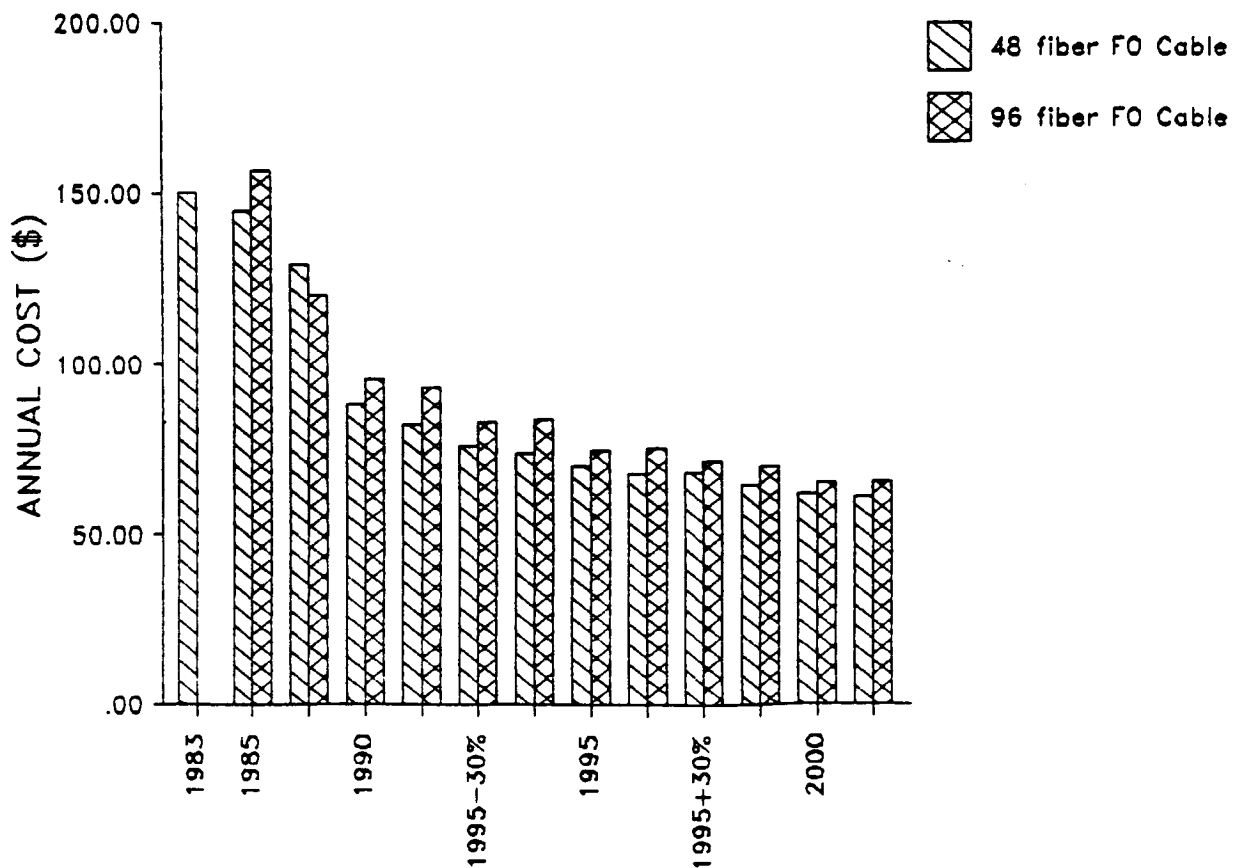
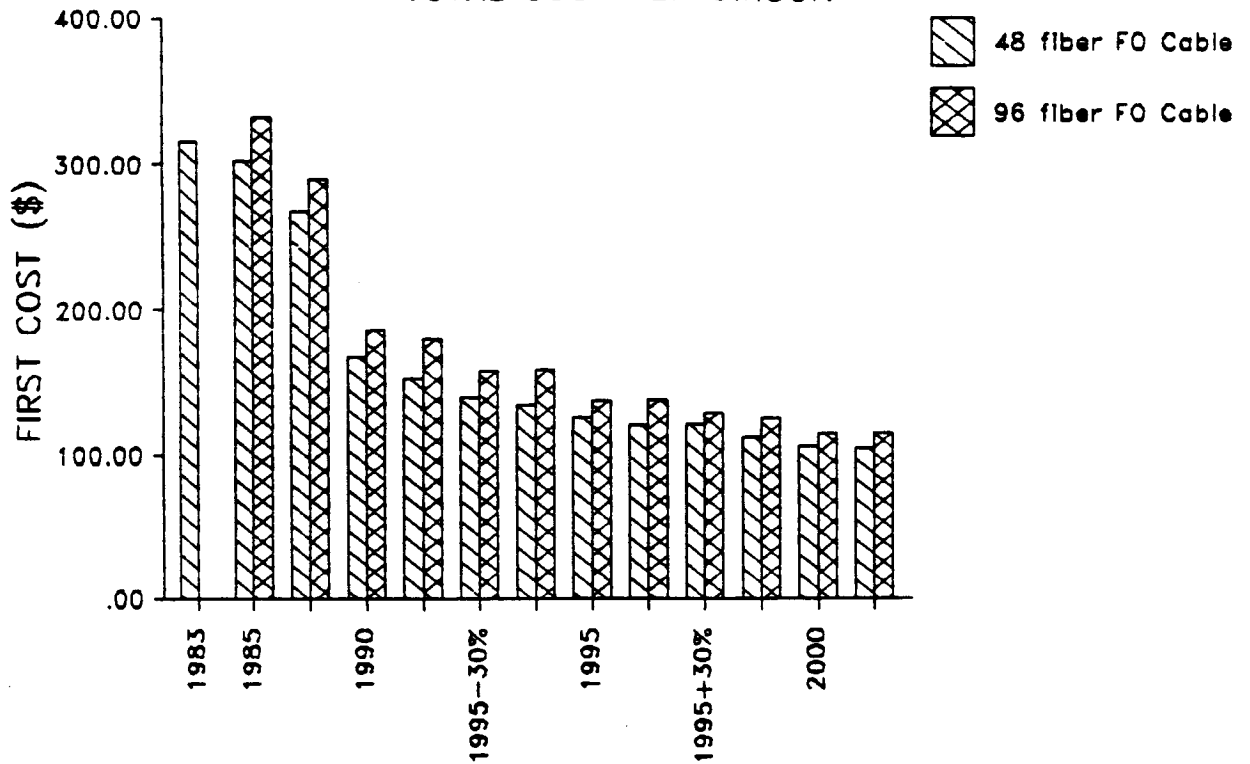


EXHIBIT 6.65: 17 NODE NETWORK - COST SUMMARY

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
48f FO CA	405 mbps	405 mbps	810 mbps	1.7 gbps	1.7gbps	1.7gbps	4.05 gbps
FC (\$000)	1989669	2278865	2170471	2135220	2811564	3578897	4023012
\$000/mi	142	162	155	152	200	255	287
\$/cct-mi	.56	.54	.31	.25	.23	.23	.20
\$/cct	293.65	279.05	159.46	130.68	120.45	117.94	102.81
AC (\$000)	950712	1097392	1154926	1179022	1587174	2031776	2369016
\$000/mi	68	78	82	84	113	145	169
\$/cct-mi	.27	.26	.16	.14	.13	.13	.12
\$/cct	140.31	134.38	84.85	72.16	68.00	66.96	60.54
48f FO CA		565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
FC (\$000)		2005936	1975331	2116704	2719614	3333133	4026489
\$000/mi		143	141	151	194	238	287
\$/cct-mi		.47	.28	.25	.22	.21	.20
\$/cct		245.63	145.13	129.55	116.51	109.84	102.90
AC (\$000)		976125	1078205	1175331	1553500	1935629	2374864
\$000/mi		70	77	84	111	138	169
\$/cct-mi		.23	.15	.14	.13	.12	.12
\$/cct		119.53	79.22	71.93	66.55	63.79	60.69
96f FO CA		405 mbps	810 mbps	1.7 gbps	1.7gbps	1.7gbps	4.05 gbps
FC (\$000)		2470621	2362409	2481066	3102895	3720164	4387848
\$000/mi		176	168	177	221	265	313
\$/cct-mi		.58	.33	.29	.26	.24	.22
\$/cct		302.53	173.57	151.85	132.93	122.60	112.13
AC (\$000)		1174701	1232308	1318455	1704627	2088729	2516104
\$000/mi		84	88	94	122	149	179
\$/cct-mi		.28	.17	.16	.14	.13	.12
\$/cct		143.84	90.54	80.69	73.03	68.83	64.30
96f FO CA		565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
FC (\$000)		2172576	2340166	2497908	3100818	3702310	4407693
\$000/mi		155	167	178	221	264	314
\$/cct-mi		.51	.33	.29	.26	.23	.22
\$/cct		266.03	171.93	152.88	132.84	122.01	112.64
AC (\$000)		1043309	1225294	1329019	1707188	2084468	2528551
\$000/mi		74	87	95	122	149	180
\$/cct-mi		.25	.17	.16	.14	.13	.12
\$/cct		127.75	90.02	81.34	73.14	68.69	64.62

EXHIBIT 6.66

FIRST COST DISTRIBUTION - 17 NODE NETWORK

<u>17 Node Network</u>	<u>M13 Mux</u>	<u>Electronics</u>	<u>Structures</u>	<u>FO Cable</u>
<u>1983 Traffic</u>				
405mbps FO System (48f)	15.1 %	18.2 %	4.7 %	62.0 %
<u>1985 Traffic</u>				
405mbps FO System (48f)	16.0	19.0	4.1	60.9
565mbps FO System (48f)	18.2	19.1	4.6	58.1
405mbps FO System (96f)	14.8	17.6	3.7	63.9
565mbps FO System (96f)	16.7	17.7	4.3	61.3
<u>1990 Traffic</u>				
810mbps FO System (48f)	49.0	8.6	2.3	40.1
1.7Gbps FO System (48f)	53.8	9.9	2.6	33.7
810mbps FO System (96f)	45.0	7.9	2.1	45.0
1.7Gbps FO System (96f)	45.4	8.3	2.2	44.1
<u>1995 Traffic</u>				
1.7Gbps FO System (48f)	64.9	7.1	1.1	26.9
4.05Gbps FO System (48f)	67.1	7.9	1.1	23.9
1.7Gbps FO System (96f)	58.7	6.5	1.0	33.8
4.05Gbps FO System (96f)	58.7	7.0	1.0	33.3
<u>1995 Traffic + 30 %</u>				
1.7Gbps FO System (48f)	66.3	7.2	.8	25.7
4.05Gbps FO System (48f)	71.1	8.1	.9	19.9
1.7Gbps FO System (96f)	63.8	6.9	.8	28.5
4.05Gbps FO System (96f)	64.1	7.3	.8	27.8
<u>1995 Traffic - 30 %</u>				
1.7Gbps FO System (48f)	59.8	6.7	1.4	32.1
4.05Gbps FO System (48f)	60.3	7.6	1.4	30.7
1.7Gbps FO System (96f)	51.4	5.8	1.2	41.6
4.05Gbps FO System (96f)	51.1	6.4	1.2	41.3
<u>2000 Traffic</u>				
1.7Gbps FO System (48f)	76.0	6.8	.6	16.6
4.05Gbps FO System (48f)	75.9	7.4	.6	16.1
1.7Gbps FO System (96f)	69.7	6.3	.5	23.5
4.05Gbps FO System (96f)	69.4	6.7	.5	23.4

EXHIBIT 6.67

ANNUAL COST DISTRIBUTION - 17 NODE NETWORK

<u>17 Node Network</u>	<u>M13 Mux</u>	<u>Electronics</u>	<u>Structures</u>	<u>F0 Cable</u>
<u>1983 Traffic</u>				
405mbps F0 System (48f)	20.0 %	23.8 %	3.9 %	52.3 %
<u>1985 Traffic</u>				
405mbps F0 System (48f)	20.8	24.8	3.4	51.0
565mbps F0 System (48f)	23.4	24.7	3.8	48.1
405mbps F0 System (96f)	19.5	23.2	3.1	54.2
565mbps F0 System (96f)	21.9	23.1	3.5	51.5
<u>1990 Traffic</u>				
810mbps F0 System (48f)	57.8	10.1	1.7	30.4
1.7Gbps F0 System (48f)	61.9	11.3	1.9	24.9
810mbps F0 System (96f)	54.2	9.5	1.6	34.7
1.7Gbps F0 System (96f)	54.5	10.0	1.6	33.9
<u>1995 Traffic</u>				
1.7Gbps F0 System (48f)	72.2	7.9	.7	19.2
4.05Gbps F0 System (48f)	73.6	8.7	.8	16.9
1.7Gbps F0 System (96f)	67.1	7.4	.7	24.8
4.05Gbps F0 System (96f)	67.1	7.9	.7	24.3
<u>1995 Traffic + 30 %</u>				
1.7Gbps F0 System (48f)	73.2	7.9	.6	18.3
4.05Gbps F0 System (48f)	76.8	8.8	.6	13.8
1.7Gbps F0 System (96f)	71.2	7.7	.6	20.5
4.05Gbps F0 System (96f)	71.4	8.1	.6	19.9
<u>1995 Traffic - 30 %</u>				
1.7Gbps F0 System (48f)	67.9	7.7	1.0	23.4
4.05Gbps F0 System (48f)	68.1	8.6	1.0	22.3
1.7Gbps F0 System (96f)	60.8	6.8	.9	31.5
4.05Gbps F0 System (96f)	60.2	7.6	.9	31.3
<u>2000 Traffic</u>				
1.7Gbps F0 System (48f)	81.0	7.3	.4	11.3
4.05Gbps F0 System (48f)	80.8	7.8	.4	11.0
1.7Gbps F0 System (96f)	76.2	6.9	.4	16.5
4.05Gbps F0 System (96f)	75.8	7.4	.4	16.4

EXHIBIT 6.68 A: 17 NODE NETWORK

TOTAL COST BREAKDOWN

48f FO CABLE

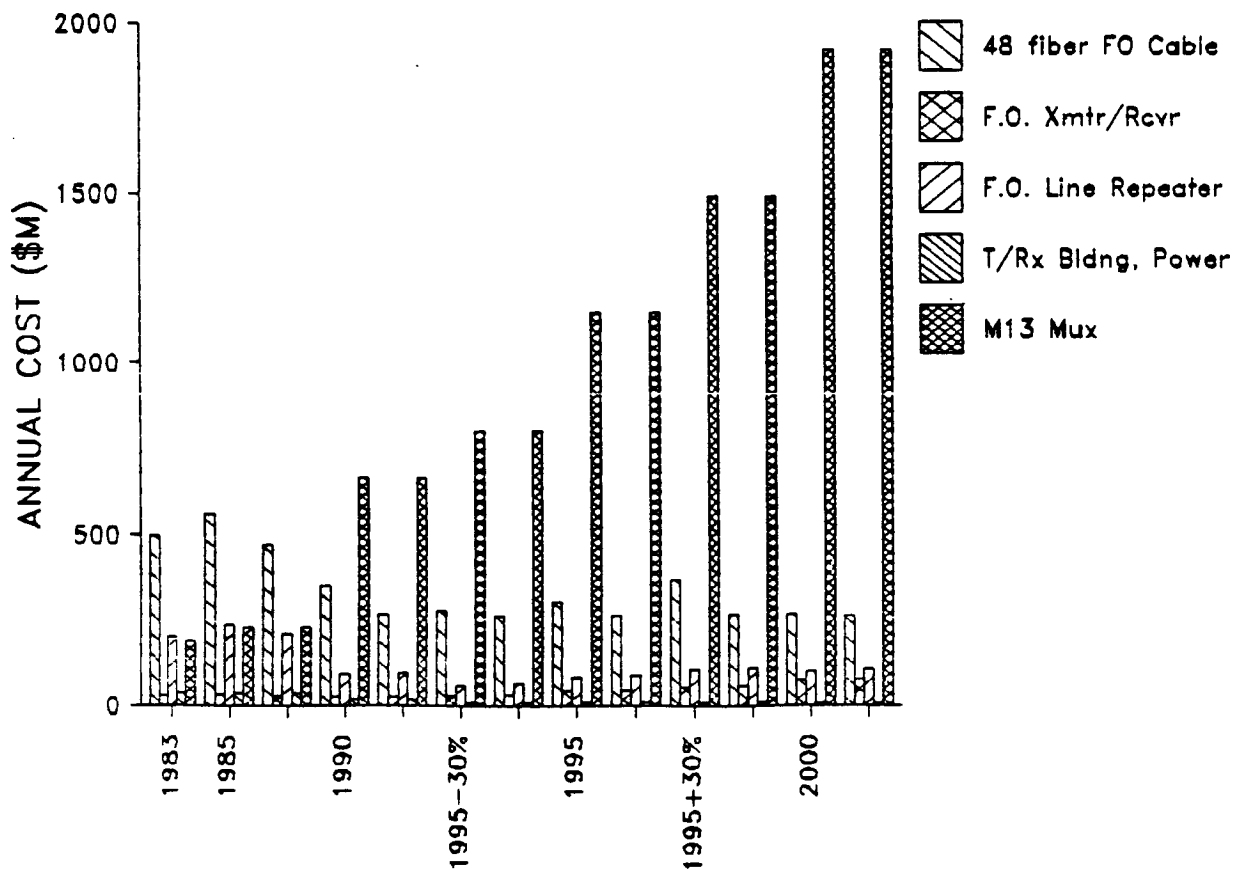
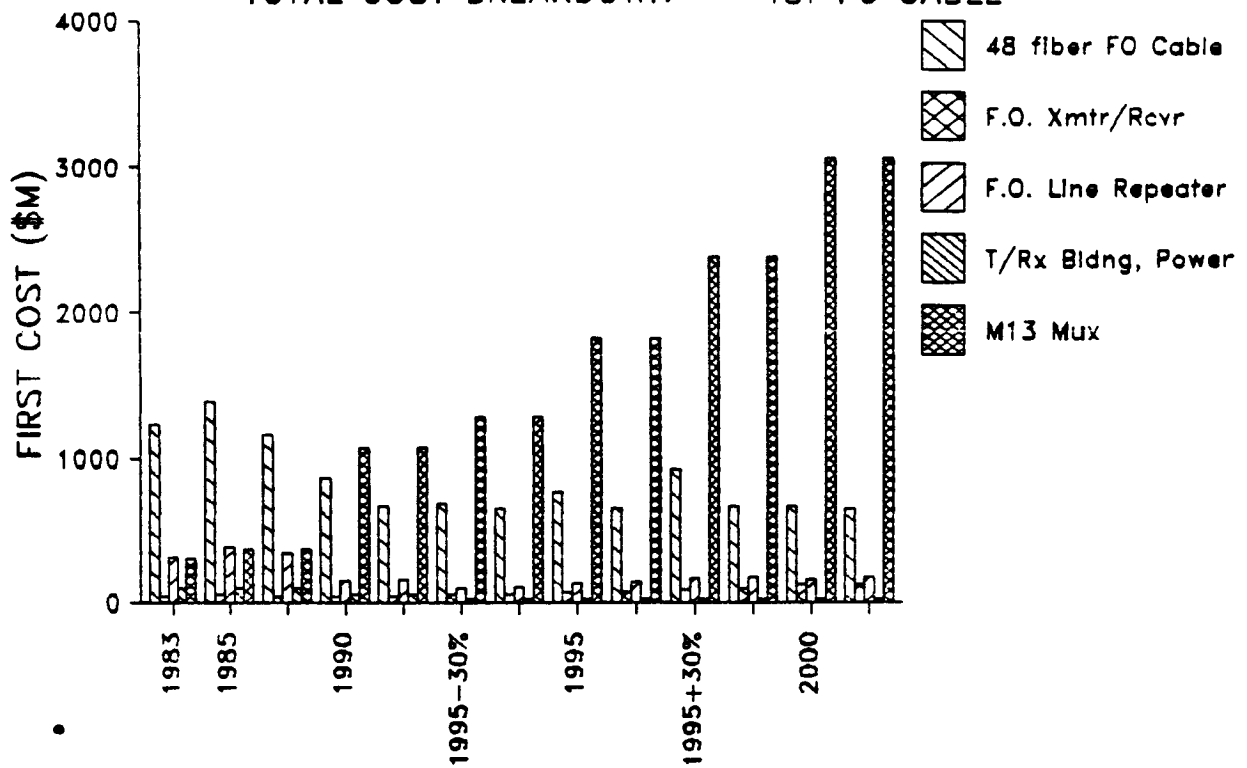


EXHIBIT 6.68 B: 17 NODE NETWORK

TOTAL COST BREAKDOWN

96f FO CABLE

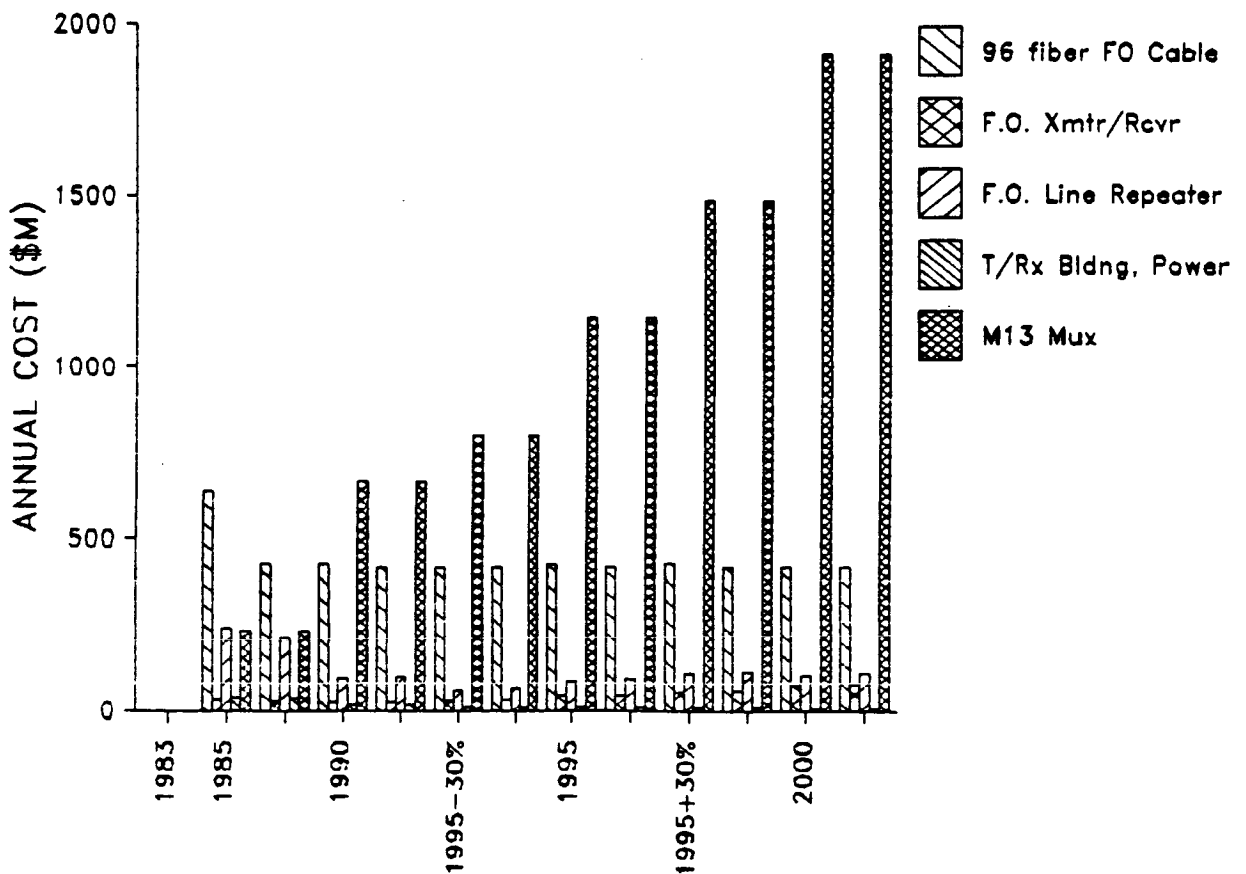
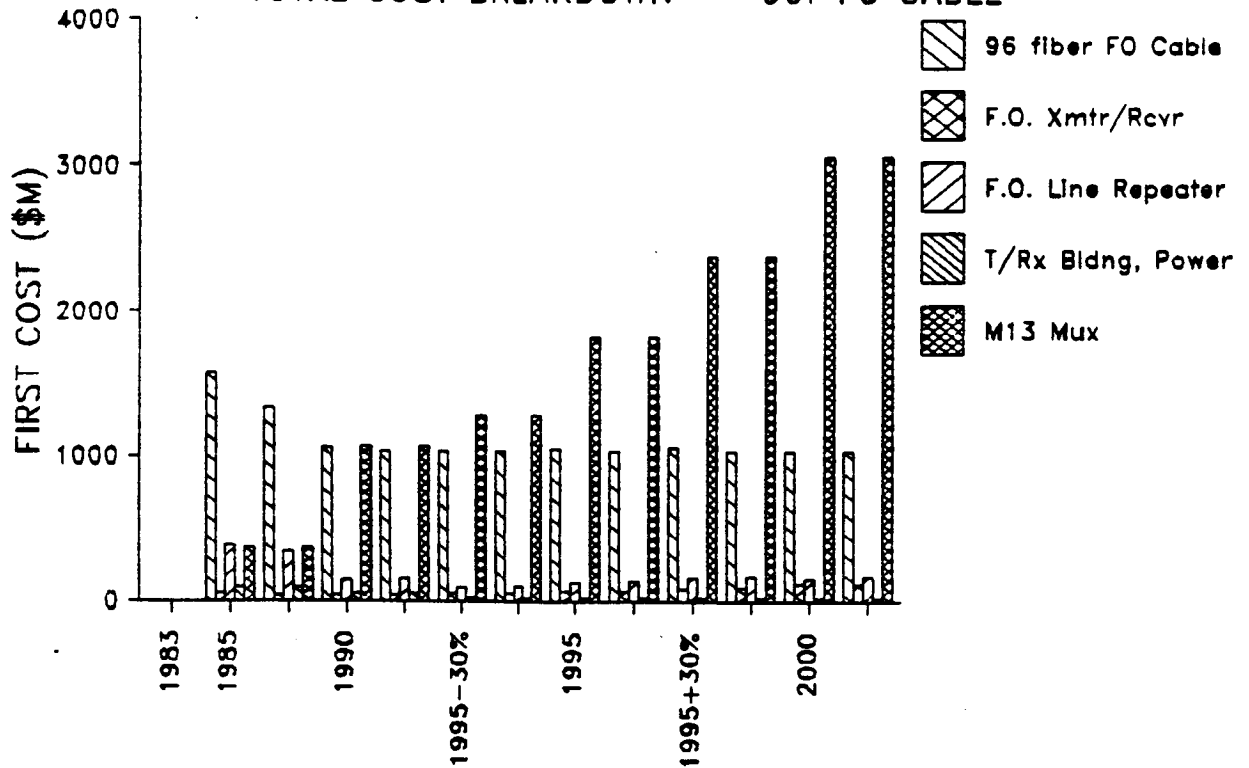


EXHIBIT 6.68 C: 17 NODE NETWORK

TOTAL COST PER CIRCUIT

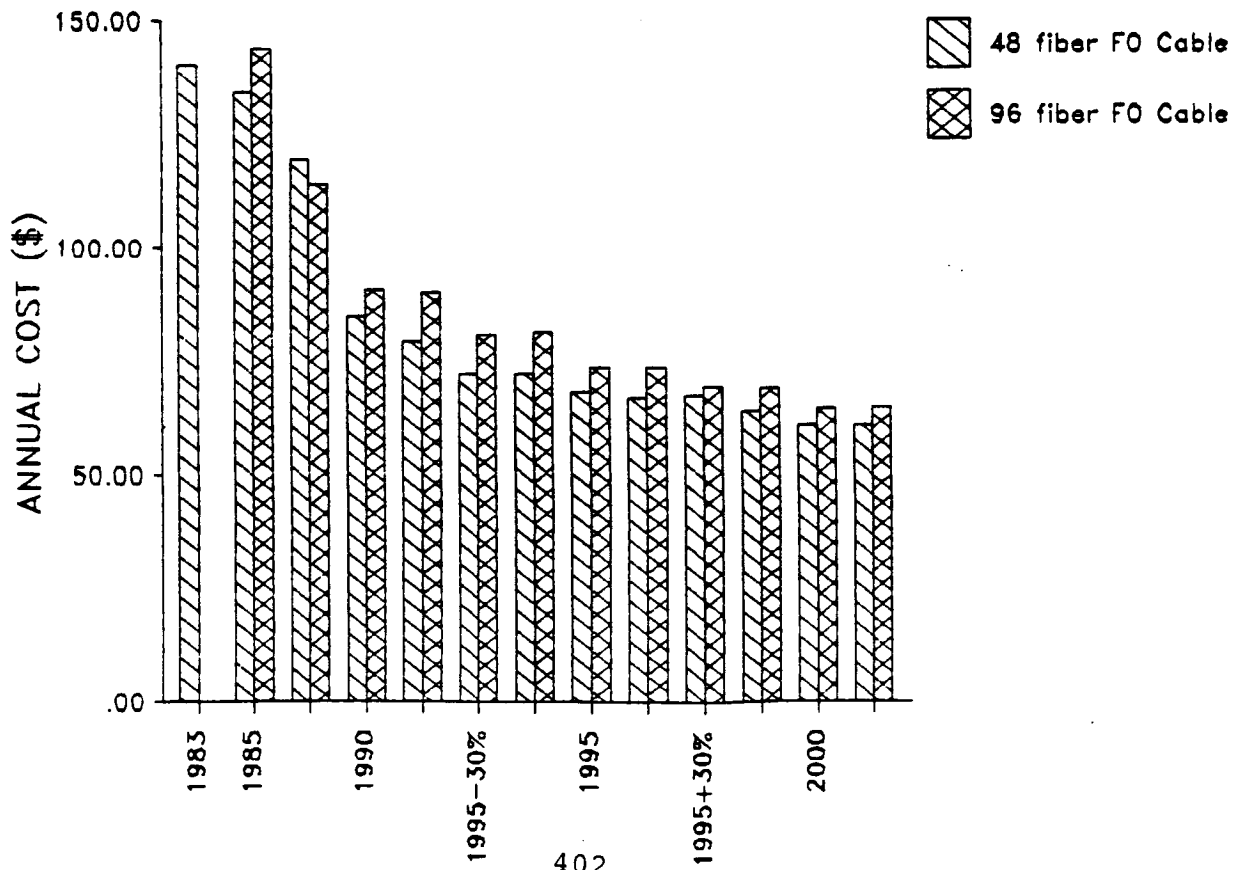
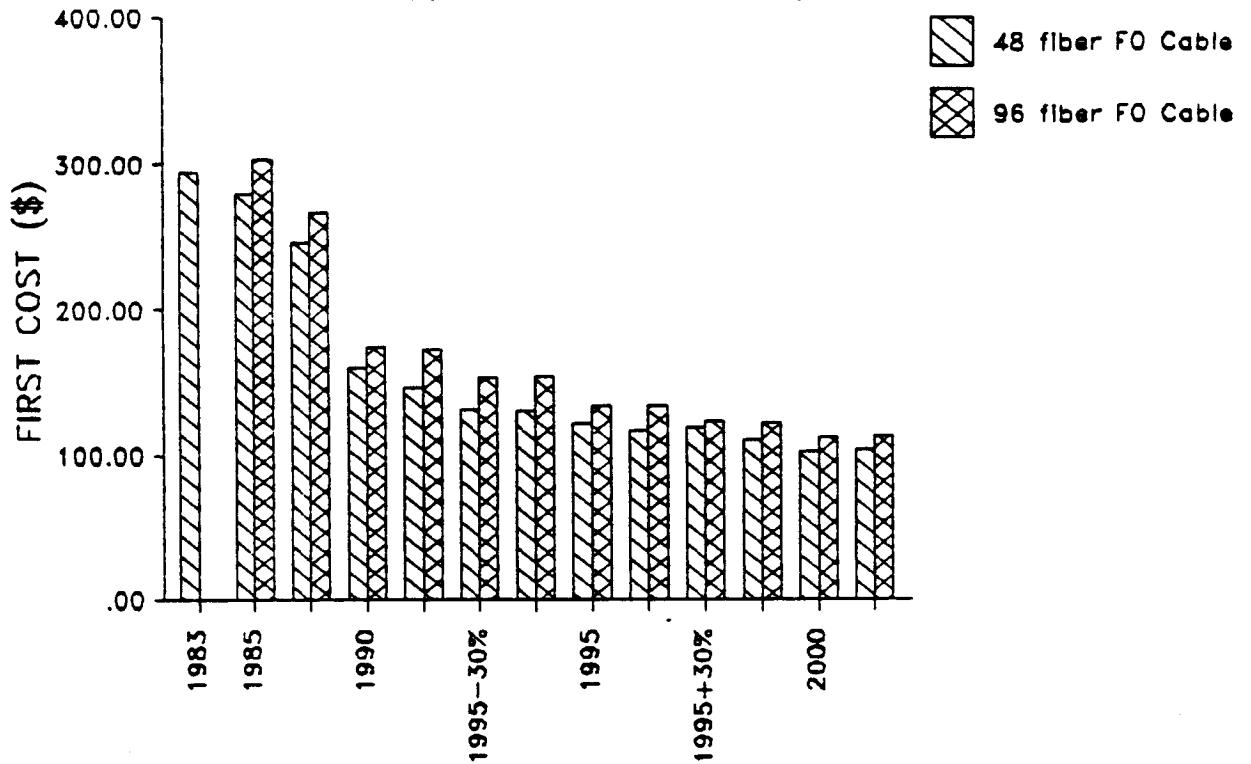


EXHIBIT 6.69: 23 NODE NETWORK - COST SUMMARY

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
48f FO CA405 mbps405 mbps810 mbps1.7 gbps 1.7gbps 1.7gbps4.05 gbp							
FC (\$000)	2089693	2442229	2491691	2565748	3428650	4341812	5037374
\$000/mi	151	176	179	185	247	313	363
\$/cct-mi	.58	.57	.35	.30	.28	.27	.24
\$/cct	236.03	228.87	140.10	120.18	112.42	109.51	98.52
AC (\$000)	1016492	1193723	1360951	1444620	1967251	2510236	2996597
\$000/mi	73	86	98	104	142	181	216
\$/cct-mi	.28	.28	.19	.17	.16	.16	.14
\$/cct	114.81	111.87	76.52	67.67	64.50	63.31	58.61
48f FO CA		565 mbps1.7 gbps4.05 gbp4.05 gbp4.05 gbp8.1 gbps					
FC (\$000)		2146315	2322062	2524426	3299168	4090070	4998803
\$000/mi		155	167	182	238	295	360
\$/cct-mi		.50	.32	.29	.27	.25	.24
\$/cct		201.14	130.56	118.24	108.17	103.16	97.76
AC (\$000)		1062102	1294233	1432121	1918070	2411581	2985822
\$000/mi		77	93	103	138	174	215
\$/cct-mi		.25	.18	.17	.16	.15	.14
\$/cct		99.53	72.77	67.08	62.89	60.82	58.40
96f FO CA		405 mbps810 mbps1.7 gbps 1.7gbps 1.7gbps4.05 gbp					
FC (\$000)		2622379	2716726	2883154	3684703	4520562	5354781
\$000/mi		189	196	208	265	326	386
\$/cct-mi		.61	.38	.33	.30	.28	.26
\$/cct		245.75	152.76	135.05	120.81	114.01	104.73
AC (\$000)		1266353	1451677	1572587	2070482	2582302	3124563
\$000/mi		91	105	113	149	186	225
\$/cct-mi		.29	.20	.18	.17	.16	.15
\$/cct		118.67	81.62	73.66	67.89	65.13	61.11
96f FO CA		565 mbps1.7 gbps4.05 gbp4.05 gbp4.05 gbp8.1 gbps					
FC (\$000)		2312093	2671500	2901718	3676461	4455876	5376096
\$000/mi		167	192	209	265	321	387
\$/cct-mi		.53	.37	.34	.30	.28	.26
\$/cct		216.67	150.21	135.92	120.54	112.38	105.14
AC (\$000)		1128938	1435114	1584231	2070180	2559060	3137933
\$000/mi		81	103	114	149	184	226
\$/cct-mi		.26	.20	.18	.17	.16	.15
\$/cct		105.80	80.69	74.20	67.88	64.54	61.37

EXHIBIT 6.70

FIRST COST DISTRIBUTION - 23 NODE NETWORK

<u>23 Node Network</u>	<u>M13 Mux</u>	<u>Electronics</u>	<u>Structures</u>	<u>FO Cable</u>
<u>1983 Traffic</u>				
405mbps FO System (48f)	18.9 %	18.3 %	4.5 %	58.3 %
<u>1985 Traffic</u>				
405mbps FO System (48f)	19.5	18.8	3.8	57.9
565mbps FO System (48f)	22.2	18.8	4.4	54.6
405mbps FO System (96f)	18.1	17.5	3.6	60.8
565mbps FO System (96f)	20.6	17.4	4.1	57.9
<u>1990 Traffic</u>				
810mbps FO System (48f)	55.8	8.1	2.1	34.0
1.7Gbps FO System (48f)	59.9	9.0	2.2	28.9
810mbps FO System (96f)	51.2	7.4	1.9	39.5
1.7Gbps FO System (96f)	52.0	7.8	2.0	38.2
<u>1995 Traffic</u>				
1.7Gbps FO System (48f)	69.6	6.6	.9	22.9
4.05Gbps FO System (48f)	72.2	7.3	1.0	19.5
1.7Gbps FO System (96f)	64.6	6.2	.9	28.3
4.05Gbps FO System (96f)	64.7	6.6	.9	27.8
<u>1995 Traffic + 30 %</u>				
1.7Gbps FO System (48f)	71.4	6.7	.7	21.2
4.05Gbps FO System (48f)	75.7	7.5	.8	16.0
1.7Gbps FO System (96f)	68.5	6.5	.7	24.3
4.05Gbps FO System (96f)	69.5	6.9	.7	22.9
<u>1995 Traffic - 30 %</u>				
1.7Gbps FO System (48f)	65.1	6.3	1.2	27.4
4.05Gbps FO System (48f)	66.1	7.2	1.2	25.5
1.7Gbps FO System (96f)	57.9	5.6	1.1	35.4
4.05Gbps FO System (96f)	57.5	6.2	1.1	35.2
<u>2000 Traffic</u>				
1.7Gbps FO System (48f)	79.2	6.3	.5	14.0
4.05Gbps FO System (48f)	79.9	6.7	.5	12.9
1.7Gbps FO System (96f)	74.5	5.9	.5	19.1
4.05Gbps FO System (96f)	74.3	6.3	.4	19.0

EXHIBIT 6.71

ANNUAL COST DISTRIBUTION - 23 NODE NETWORK

<u>23 Node Network</u>	<u>M13 Mux</u>	<u>Electronics</u>	<u>Structures</u>	<u>F0 Cable</u>
<u>1983 Traffic</u>				
405mbps F0 System (48f)	24.4 %	23.6 %	3.7 %	48.3 %
<u>1985 Traffic</u>				
405mbps F0 System (48f)	25.1	24.1	3.1	47.7
565mbps F0 System (48f)	28.2	23.8	3.5	44.5
405mbps F0 System (96f)	23.6	22.7	3.0	50.7
565mbps F0 System (96f)	26.5	22.4	3.3	47.8
<u>1990 Traffic</u>				
810mbps F0 System (48f)	64.1	9.3	1.5	25.1
1.7Gbps F0 System (48f)	67.4	10.1	1.6	20.9
810mbps F0 System (96f)	60.1	8.7	1.4	29.8
1.7Gbps F0 System (96f)	60.7	9.1	1.5	28.7
<u>1995 Traffic</u>				
1.7Gbps F0 System (48f)	76.0	7.3	.6	16.1
4.05Gbps F0 System (48f)	77.9	7.9	.7	13.5
1.7Gbps F0 System (96f)	72.2	6.9	.6	20.3
4.05Gbps F0 System (96f)	72.2	7.3	.6	19.9
<u>1995 Traffic + 30 %</u>				
1.7Gbps F0 System (48f)	77.4	7.3	.5	14.8
4.05Gbps F0 System (48f)	80.7	7.9	.5	10.9
1.7Gbps F0 System (96f)	75.3	7.1	.5	17.1
4.05Gbps F0 System (96f)	75.9	7.5	.5	16.1
<u>1995 Traffic - 30 %</u>				
1.7Gbps F0 System (48f)	72.4	7.1	.9	19.6
4.05Gbps F0 System (48f)	73.1	7.9	.9	18.1
1.7Gbps F0 System (96f)	66.5	6.5	.8	26.2
4.05Gbps F0 System (96f)	66.0	7.2	.8	26.0
<u>2000 Traffic</u>				
1.7Gbps F0 System (48f)	83.6	6.6	.3	9.5
4.05Gbps F0 System (48f)	83.9	7.1	.3	8.7
1.7Gbps F0 System (96f)	80.2	6.3	.3	13.2
4.05Gbps F0 System (96f)	79.9	6.7	.3	13.1

EXHIBIT 6.72 A: 23 NODE NETWORK

TOTAL COST BREAKDOWN

48f FO CABLE

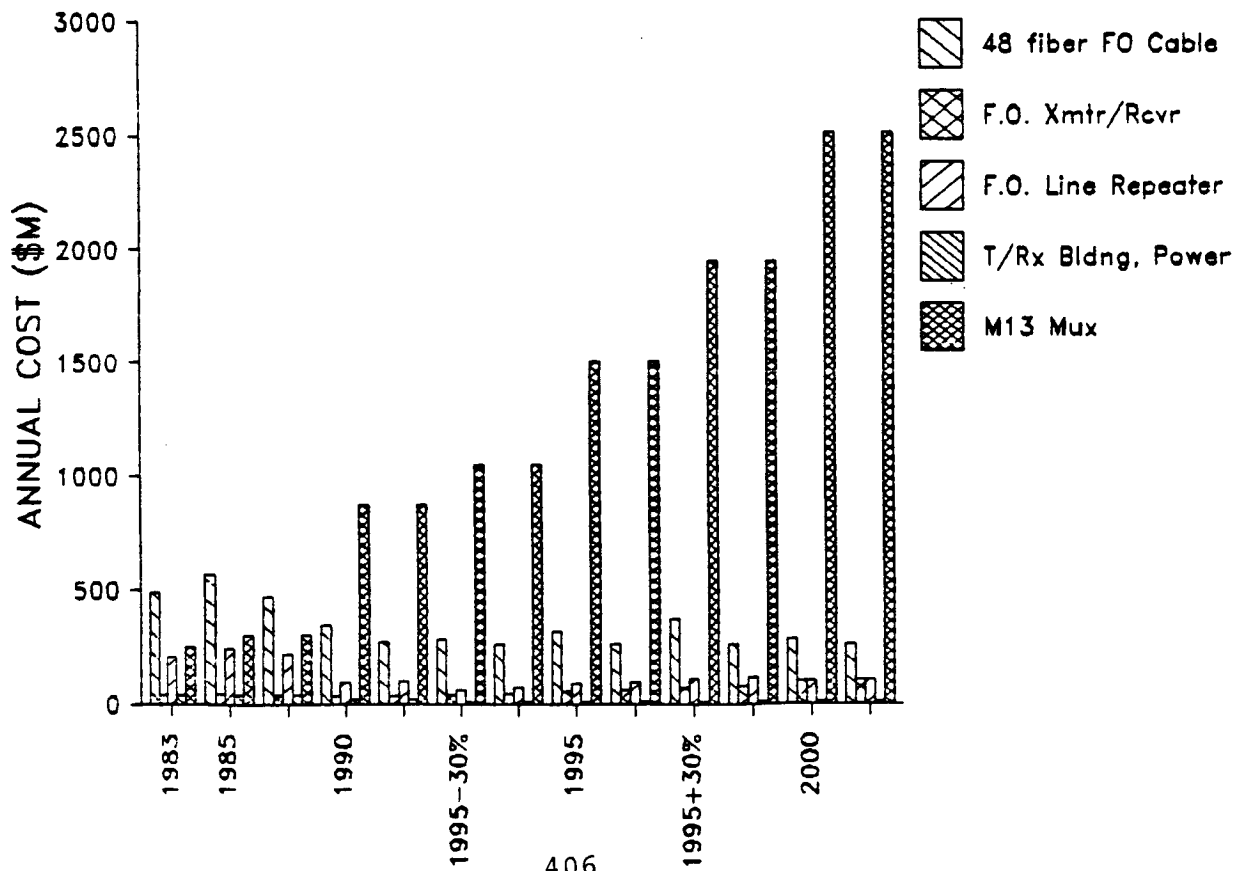
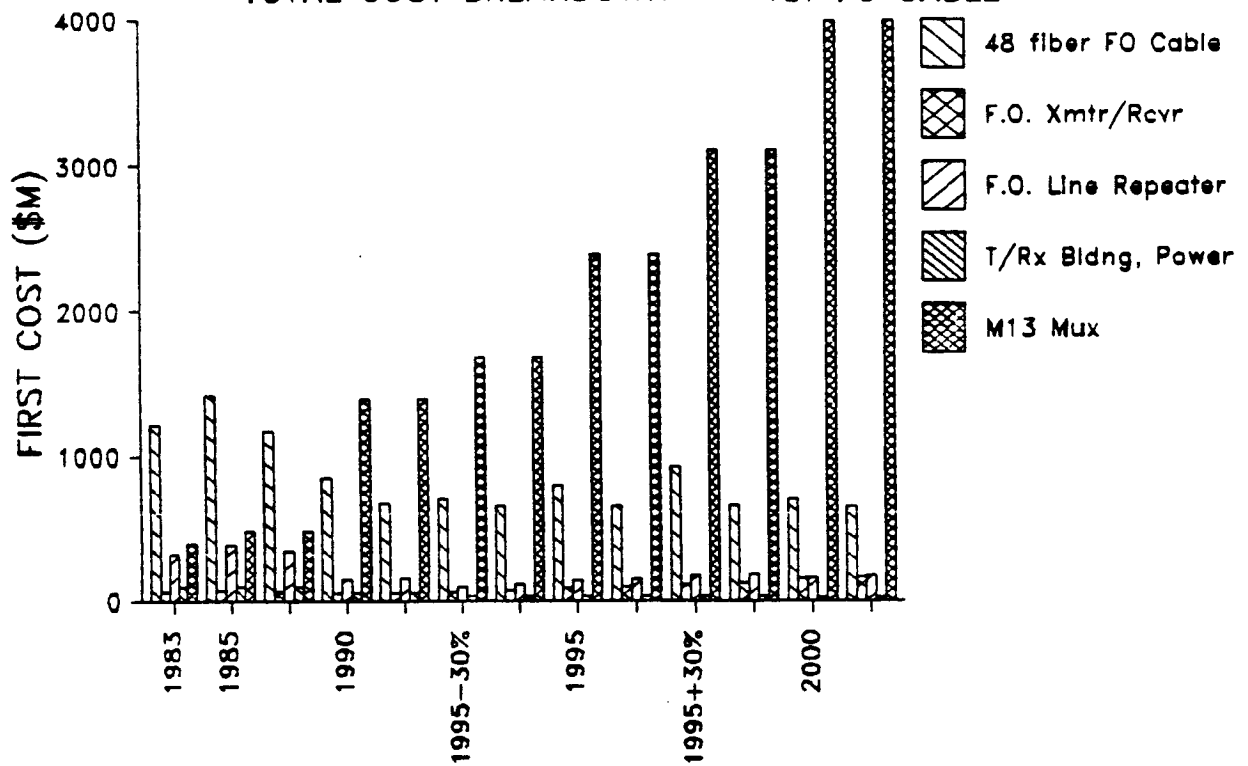


EXHIBIT 6.72 B: 23 NODE NETWORK

TOTAL COST BREAKDOWN

96f FO CABLE

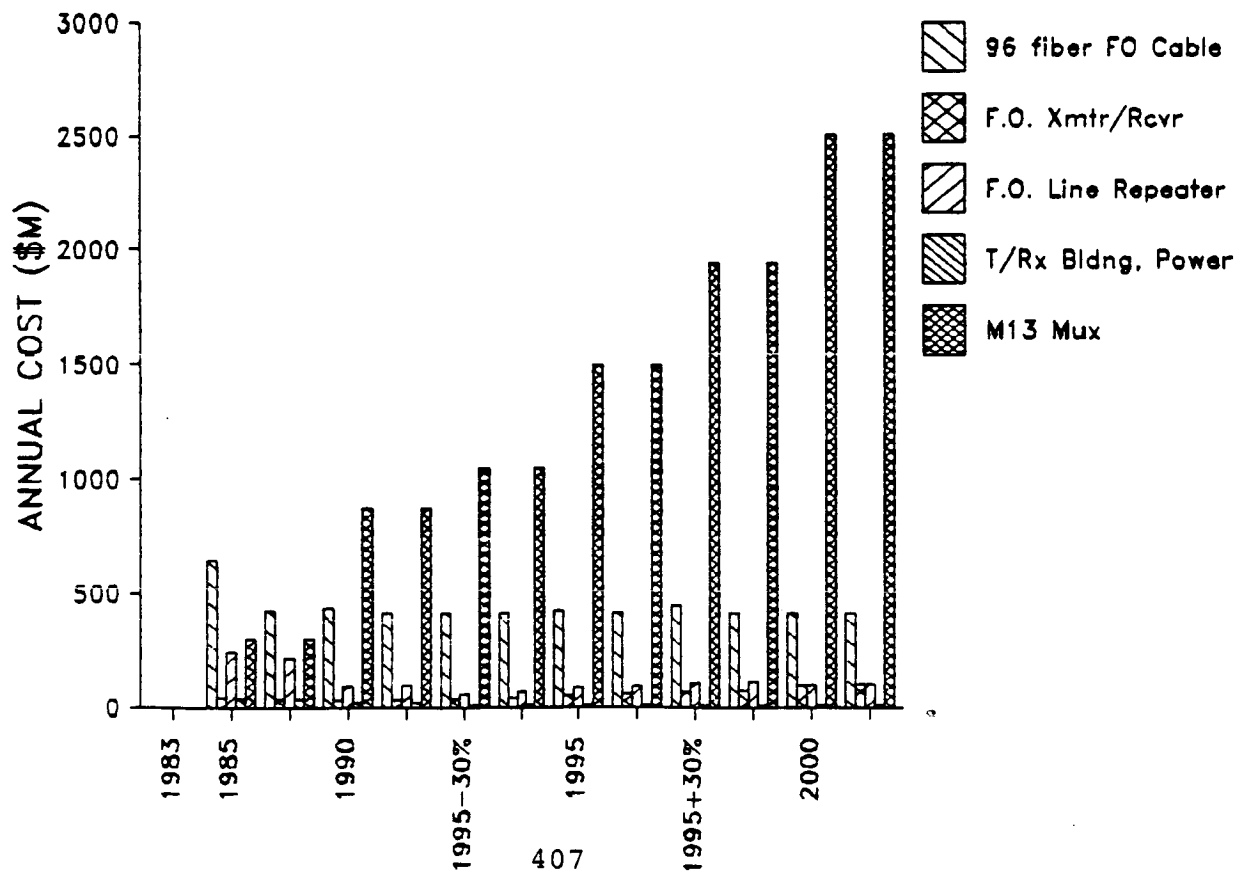
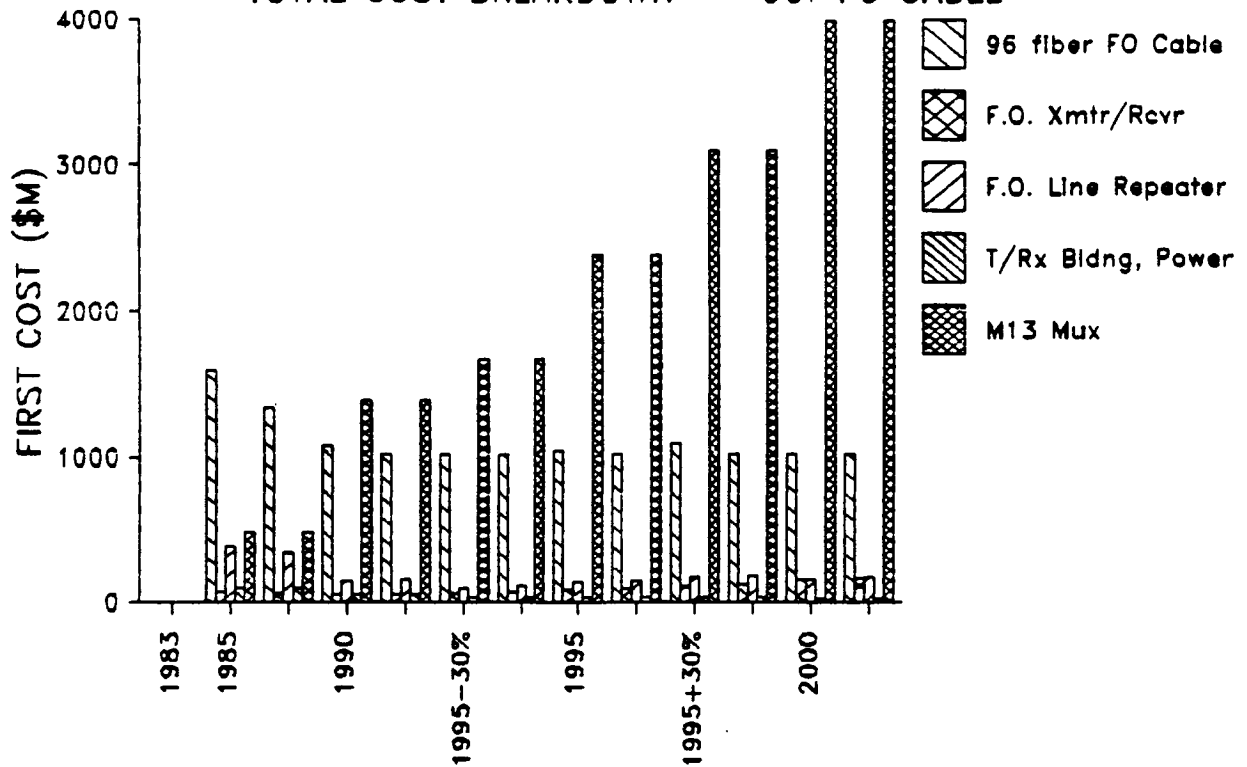


EXHIBIT 6.72 C: 23 NODE NETWORK

TOTAL COST PER CIRCUIT

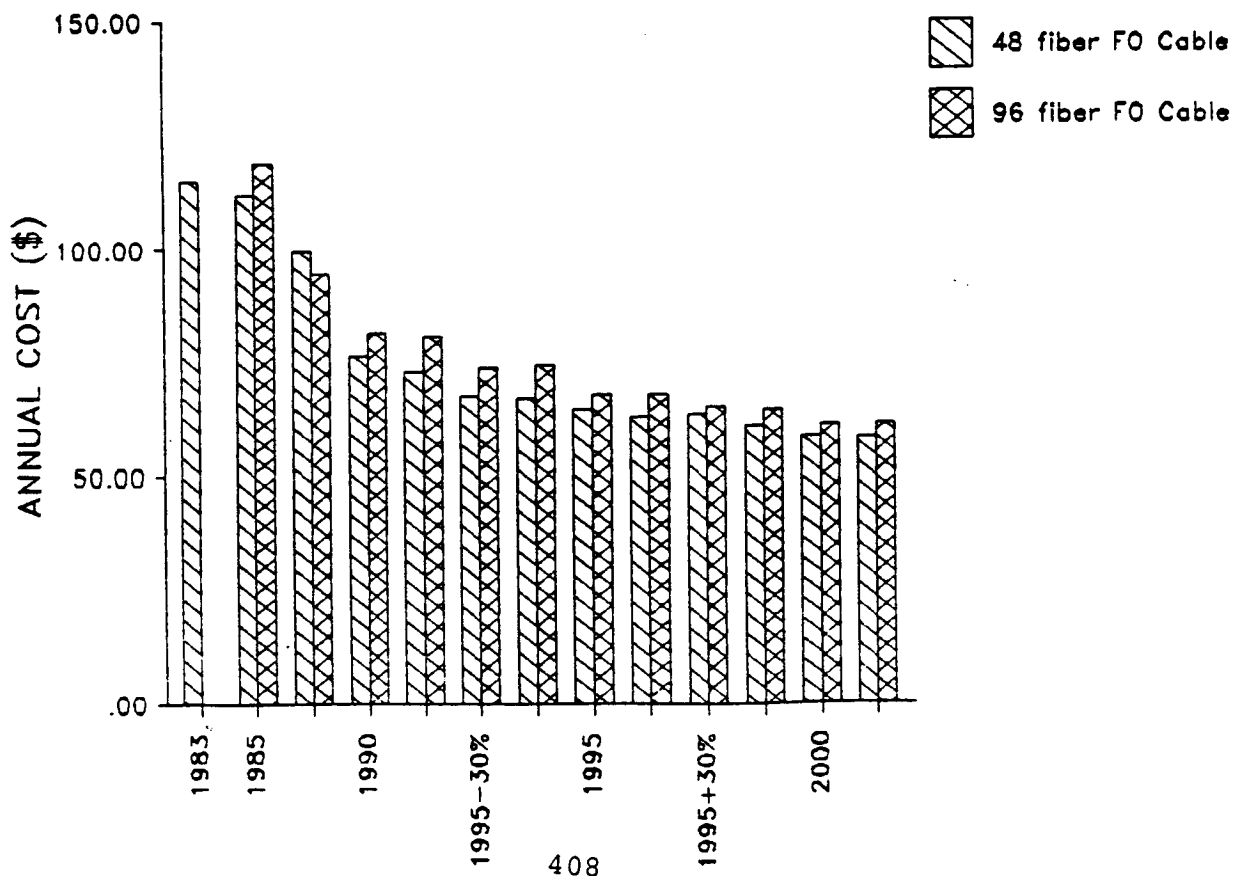
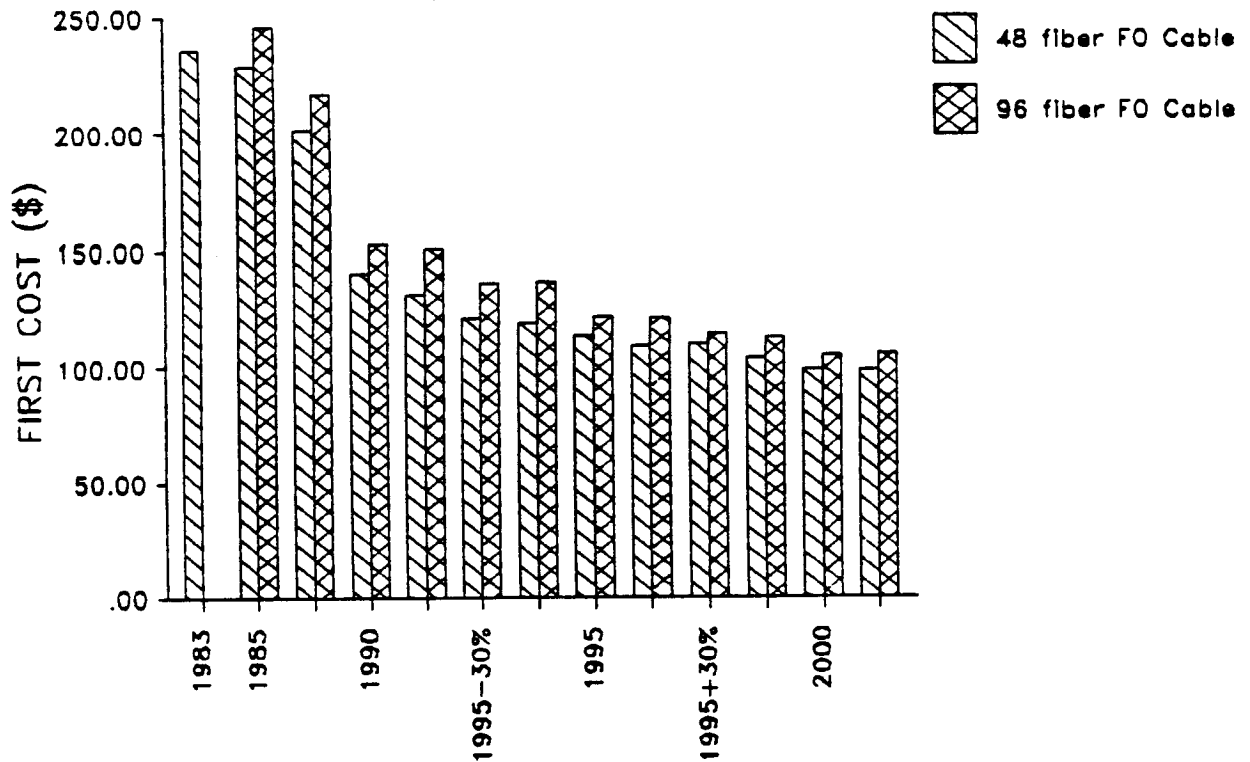


EXHIBIT 6.73: 11 NODE LATA ACCESS NETWORK - 1983 TRAFFIC

24f FO CABLE, 405 Mbps DIGITAL FO SYSTEM

25 mi Repeater Spacing

Traffic Factor .5675
Mileage Factor 1.35
Initial Fill .8

Node City	1 New York	2 Phil	3 Wash DC	4 Atlanta	5 Dallas	6 Phoenix	7 Los Ang	8 San Fran	9 Denver	10 Chicago	11 St Louis
Actual Traffic	437703	212332	183838	432764	274483	60472	201070	217524	129388	567498	155337
VF Ccts Req'd	377893	171394	160757	489004	286699	35925	50320	182572	118429	584356	132318
Total VF Channels	472366	214242	200947	611255	358374	44907	62900	228215	148036	730445	165397
Total VF Circuits	683911	331768	287247	676194	428880	94488	314172	339882	202168	886715	242715
Circuit Miles(000)	1530898	293493	490859	7961258	3213044	26403	40506	1472065	928628	9452860	437156
First Cost (\$000)											
24 fiber FO Cable	50083	24522	34882	197420	132329	8396	9196	92111	89579	189362	37743
24f Ca Splicing	3388	1659	2360	13355	8952	568	622	6231	6060	12810	2553
Cable Installation	51336	21699	38693	206307	142015	9313	10200	102174	99364	204989	41866
F.O. Xmttr/Rcvr	3600	1656	1980	5472	3456	360	612	2124	1512	6732	1404
F.O. Line Repeater	10272	4740	4656	29988	16776	1584	1440	15516	11616	28620	6804
CEV, Power	5845	2555	4620	21455	14700	980	1260	10115	9730	21875	4375
T1 & M13 Mux	188928	90939	79533	193609	121514	25195	79831	93688	56337	250648	66982
GRAND TOTAL - FC	313452	147769	166724	667606	439742	46397	103161	321959	274197	715036	161728
\$ per mile (000)	97	108	68	51	49	79	160	50	44	55	61
\$/cct-mi	.205	.503	.340	.084	.137	1.757	2.547	.219	.295	.076	.370
\$/circuit	458.32	445.40	580.42	987.30	1025.33	491.03	328.36	947.27	1356.28	806.39	666.33
Annual Cost (\$000)											
24 fiber FO Cable	20192	9886	14063	79592	53350	3385	3707	37136	36115	76344	15217
24f Ca Splicing	1366	669	951	5384	3609	229	251	2512	2443	5164	1029
Cable Installation	20697	8748	15600	83175	57255	3755	4112	41193	40060	82644	16879
F.O. Xmttr/Rcvr	2258	1039	1242	3432	2168	226	384	1332	948	4223	881
F.O. Line Repeater	6443	2973	2920	18810	10523	994	903	9732	7286	17952	4268
CEV, Power	2342	1024	1852	8598	5891	393	505	4054	3899	8767	1753
T1 & M13 Mux	118503	57040	49886	121439	76218	15804	50073	58765	35337	157216	42014
GRAND TOTAL - AC	171801	61379	86514	320432	209014	24784	59936	154724	126088	352309	82040
\$ per mile (000)	53	59	35	25	23	42	93	24	20	27	31
\$/cct-mi	.112	.277	.176	.040	.065	.939	1.480	.105	.136	.037	.183
\$/circuit	251.20	245.29	301.18	473.88	487.35	262.30	190.77	455.23	623.68	397.32	338.01

EXHIBIT 6.73A: 11 NODE LATA ACCESS (1983)

24f FO CABLE, 405 mbps FO SYSTEM, 25 mi RX SPACING

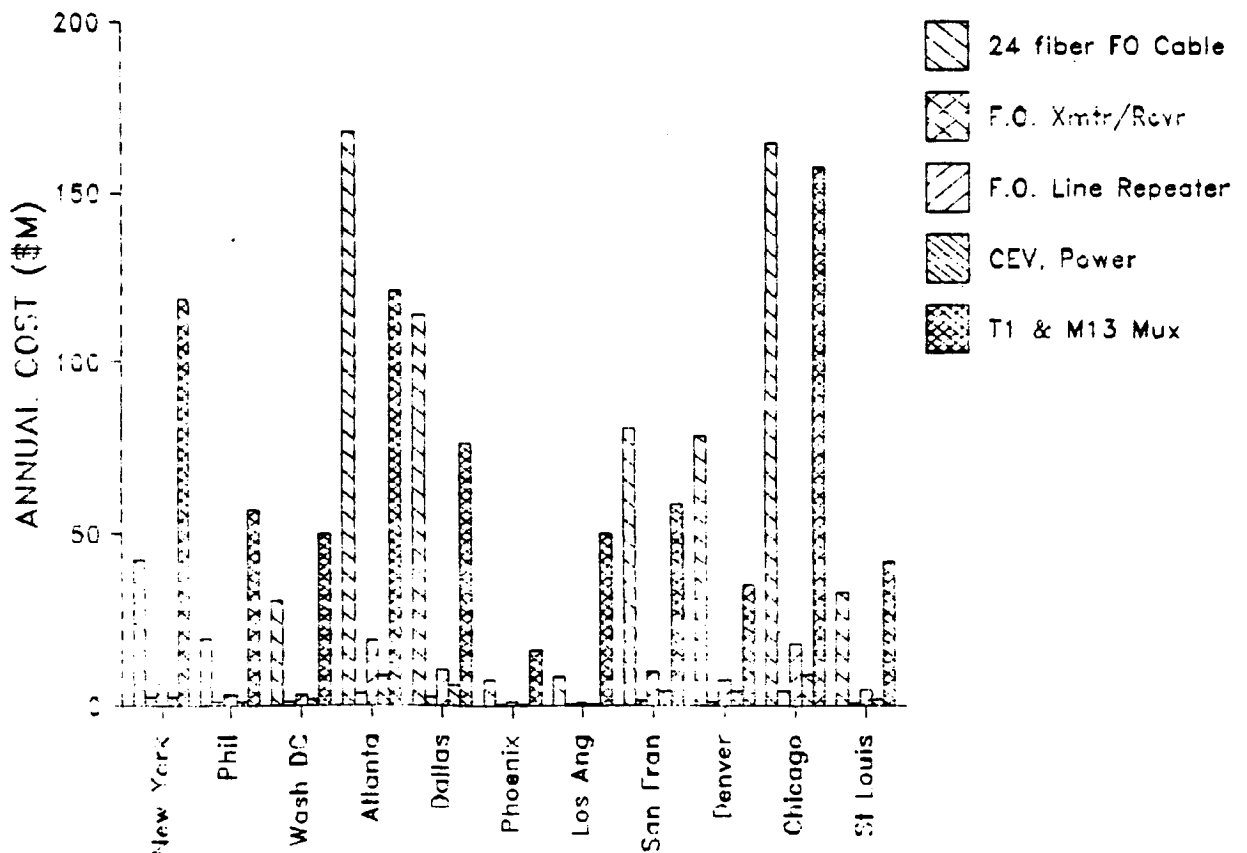
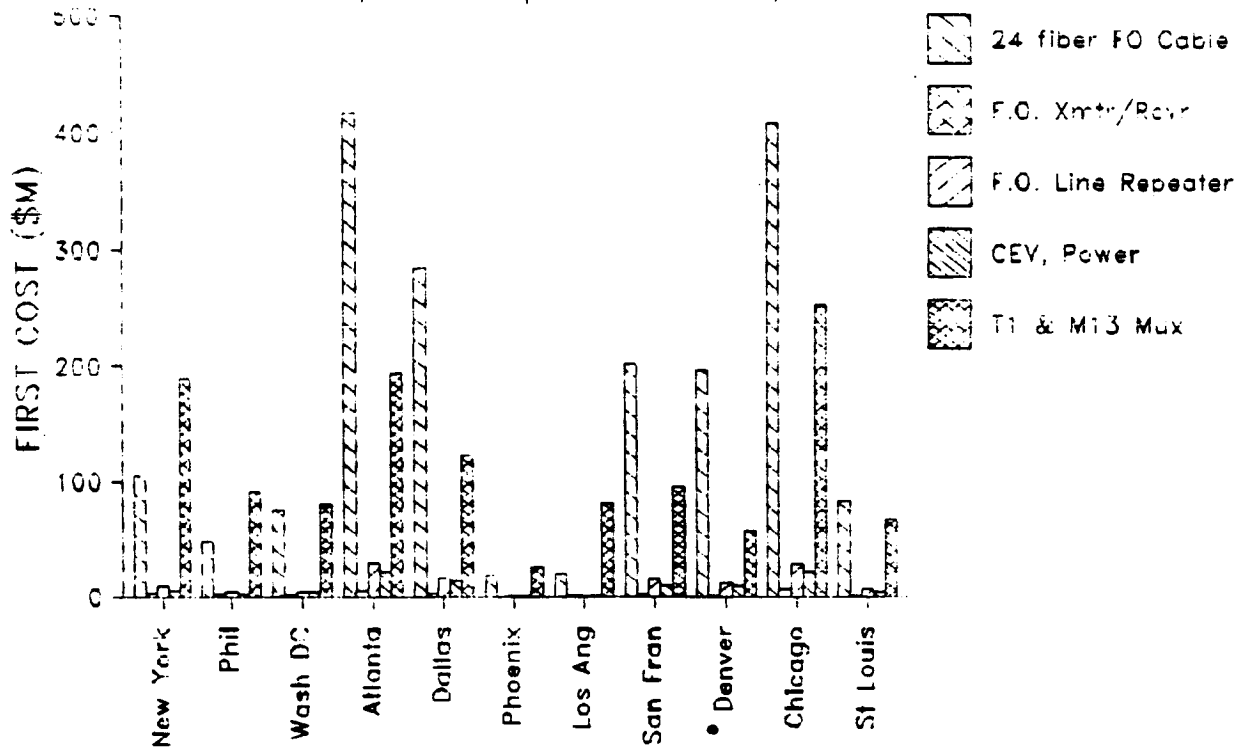


EXHIBIT 6.74: 11 NODE LATA ACCESS NETWORK - 1985 TRAFFIC

24F FO CABLE, 405 mbps DIGITAL FO SYSTEM

25 mi Repeater Spacing

Traffic Factor .684
Mileage Factor 1.35
Initial Fill .8

Node	1	2	3	4	5	6	7	8	9	10	11
City	New York	Phil	Wash DC	Atlanta	Dallas	Phoenix	Los Ang	San Fran	Denver	Chicago	St Louis
Actual Traffic	527557	255921	221578	521605	330831	72886	242347	262179	155949	683997	187226
VF Ccts Req'd	455469	206578	193759	589390	345554	49300	60650	220051	142740	704316	159481
Total VF Channels	569336	258223	242198	736737	431943	54125	75813	275064	178425	880395	199351
Total VF Circuits	824308	399876	346215	815008	516923	113885	378667	409655	243670	1068746	292541
Circuit Miles(000)	1845171	353743	591625	9595595	3872638	31823	48821	1774259	1119263	11393403	526899
First Cost (\$000)											
24 fiber FO Cable	52147	24522	34882	197420	132329	8396	9196	92111	89579	189382	37743
24f Ca Splicing	3528	1659	2360	13355	8952	568	622	6231	6060	12810	2553
Cable Installation	51336	21699	38693	206307	142015	9313	10200	102174	99364	204989	41866
F.O. Xmr/Rcvr	4140	1908	2232	6372	3888	432	648	2376	1692	7596	1620
F.O. Line Repeater	11616	5532	5256	35592	18936	1872	1524	17508	13140	32160	7908
CEV, Power	5845	2555	4620	21455	14700	980	1260	10115	9730	21875	4375
T1 & M13 Mux	227616	109606	95900	233169	146346	30366	96236	112911	67865	301830	80725
GRAND TOTAL - FC	356227	167481	183943	713670	467166	51928	119687	343426	287430	770622	176790
\$ per mile (000)	110	122	75	55	52	88	186	53	46	60	67
\$/cct-mi	.193	.473	.311	.074	.121	1.632	2.452	.194	.257	.068	.336
\$/circuit	432.15	418.83	531.30	875.66	903.74	455.97	316.07	838.33	1179.58	721.05	604.33
Annual Cost (\$000)											
24 fiber FO Cable	21024	9886	14063	79592	53350	3385	3707	37136	36115	76344	15217
24f Ca Splicing	1422	669	951	5384	3609	229	251	2512	2443	5164	1029
Cable Installation	20697	8748	15600	83175	57255	3755	4112	41193	40060	82644	16879
F.O. Xmr/Rcvr	2597	1197	1400	3997	2439	271	406	1490	1061	4765	1015
F.O. Line Repeater	7286	3470	3297	22325	11877	1174	956	10982	8242	20172	4960
CEV, Power	2342	1024	1852	8598	5891	393	505	4054	3899	8767	1753
T1 & M13 Mux	142770	68749	60152	146253	91794	19047	60363	70822	42568	189320	50634
GRAND TOTAL - AC	198138	93743	97315	349325	226216	28254	70301	168189	134388	387175	91488
\$ per mile (000)	61	68	40	27	25	48	109	26	21	30	35
\$/cct-mi	.107	.265	.164	.036	.058	.888	1.440	.095	.120	.034	.174
\$/circuit	240.37	234.43	281.08	428.62	437.62	248.09	185.65	410.56	551.52	362.27	312.74

EXHIBIT 6.74A: 11 NODE LATA ACCESS (1985)

24f FO CABLE, 405 mbps FO SYSTEM, 25 mi RX SPACING

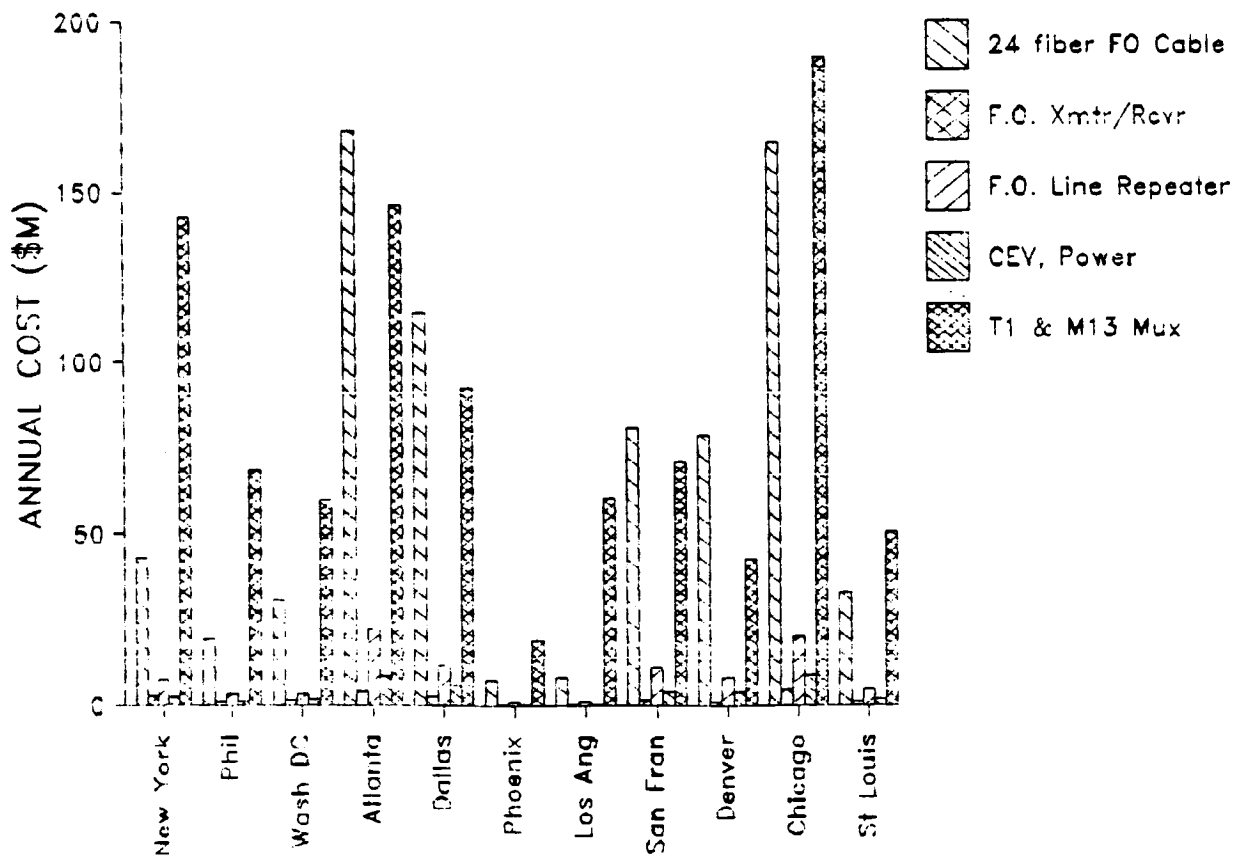
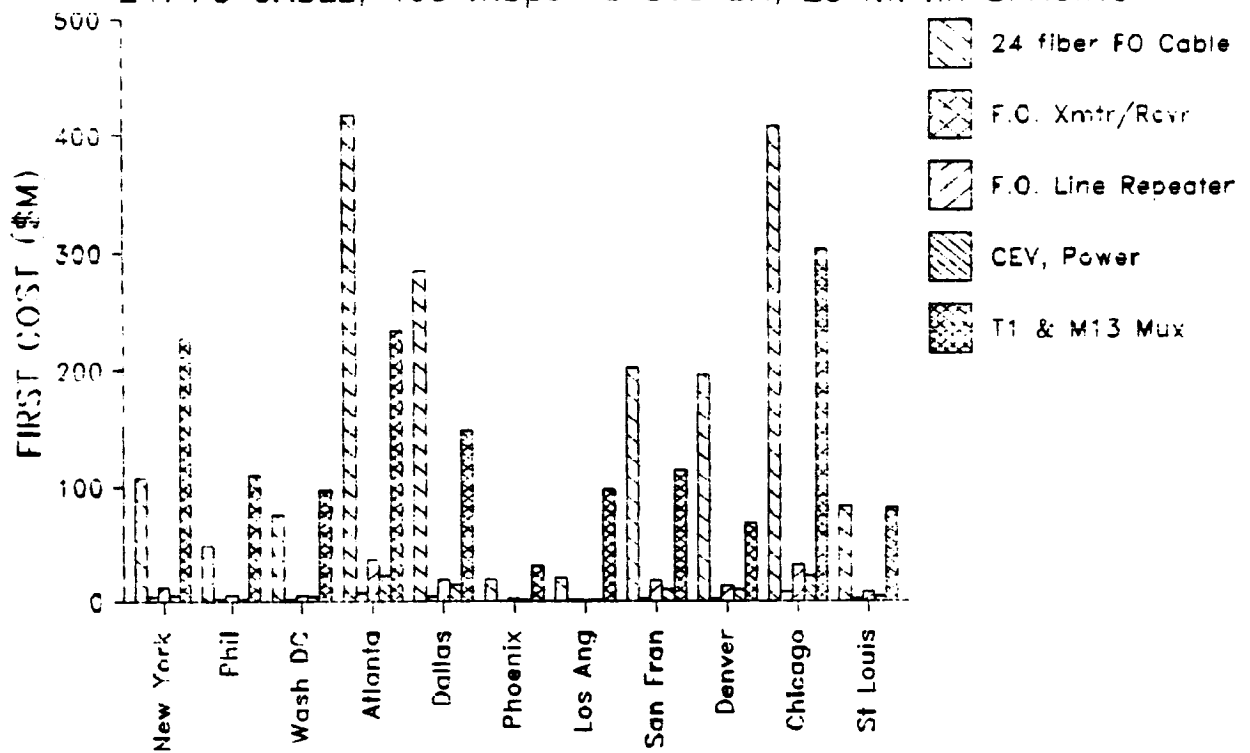


EXHIBIT 6.75: 11 NODE LATA ACCESS NETWORK - 1990 TRAFFIC

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

Traffic Factor 1.14
Mileage Factor 1.35
Initial Fill .8

	Node City	1 New York	2 Phil	3 Wash DC	4 Atlanta	5 Dallas	6 Phoenix	7 Los Ang	8 San Fran	9 Denver	10 Chicago	11 St Louis
Actual Traffic		879262	426534	369296	869341	551385	121477	403911	436965	259915	1139996	312043
VF Ccts Req'd		759114	344297	322931	982316	575924	72167	101084	366752	237900	1173860	265801
Total VF Channels		948893	430372	403664	1227895	719905	90209	126354	458440	297376	1467326	332252
Total VF Circuits		1373847	666460	577025	1358346	861538	189808	631111	682758	406117	1781243	487568
Circuit Miles(000)		3075285	589572	986042	15992659	6454396	53039	81368	2957099	1865438	18989004	878164
First Cost (\$000)												
24 fiber FO Cable		50083	24522	34882	197420	132329	8396	9196	92111	89579	189362	37743
24f Ca Splicing		3388	1659	2360	13355	8952	568	622	6231	6060	12810	2553
Cable Installation		51336	21699	38693	206307	142015	9313	10200	102174	99364	204989	41866
F.O. Xmtr/Rcvr		3672	1656	1980	5472	3492	360	612	2124	1512	6804	1404
F.O. Line Repeater		5592	2388	2400	15528	8820	792	792	7896	5940	15072	3516
CEV, Power		3535	1540	2870	12320	8470	560	805	5600	5355	12845	2520
T1 & M13 Mux		411192	197174	173287	429829	268160	53598	164607	203447	123045	552183	145627
GRAND TOTAL - FC		528798	250637	256472	880231	572238	73587	186834	419583	330854	994065	235229
\$ per mile (000)		163	183	105	68	64	125	290	65	53	77	89
\$/cct-mi		.172	.425	.260	.055	.089	1.387	2.296	.142	.177	.052	.268
\$/circuit		384.90	376.07	444.47	648.02	664.20	387.69	296.04	614.54	814.68	558.07	482.45
Annual Cost (\$000)												
24 fiber FO Cable		20192	9886	14063	79592	53350	3385	3707	37136	36115	76344	15217
24f Ca Splicing		1366	669	951	5384	3609	229	251	2512	2443	5164	1029
Cable Installation		20697	8748	15600	83175	57255	3755	4112	41193	40060	82644	16879
F.O. Xmtr/Rcvr		2303	1039	1242	3432	2190	226	384	1332	948	4268	881
F.O. Line Repeater		3508	1498	1505	9740	5532	497	497	4953	3726	9454	2205
CEV, Power		1417	617	1150	4937	3394	224	323	2244	2146	5148	1010
T1 & M13 Mux		257916	123675	108693	269606	168201	33619	103248	127610	77179	346351	91343
GRAND TOTAL - AC		307398	146132	143204	455867	293532	41935	112522	216980	162617	529373	128564
\$ per mile (000)		95	107	59	35	33	71	175	34	26	41	49
\$/cct-mi		.100	.248	.145	.029	.045	.791	1.383	.073	.087	.028	.146
\$/circuit		223.75	219.27	248.18	335.60	340.71	220.93	178.29	317.60	400.42	297.19	263.68

EXHIBIT 6.75A: 11 NODE LATA ACCESS (1990)

FIRST COST (\$M)

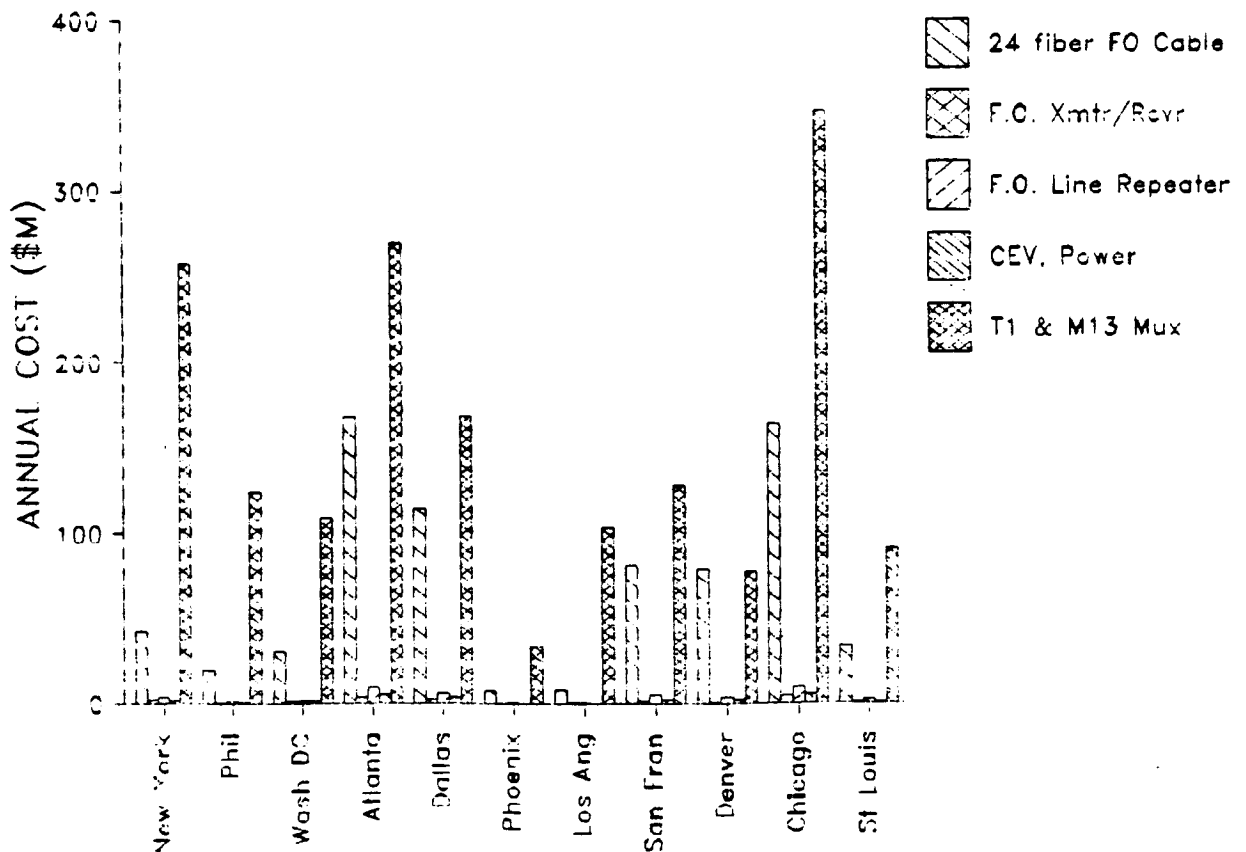
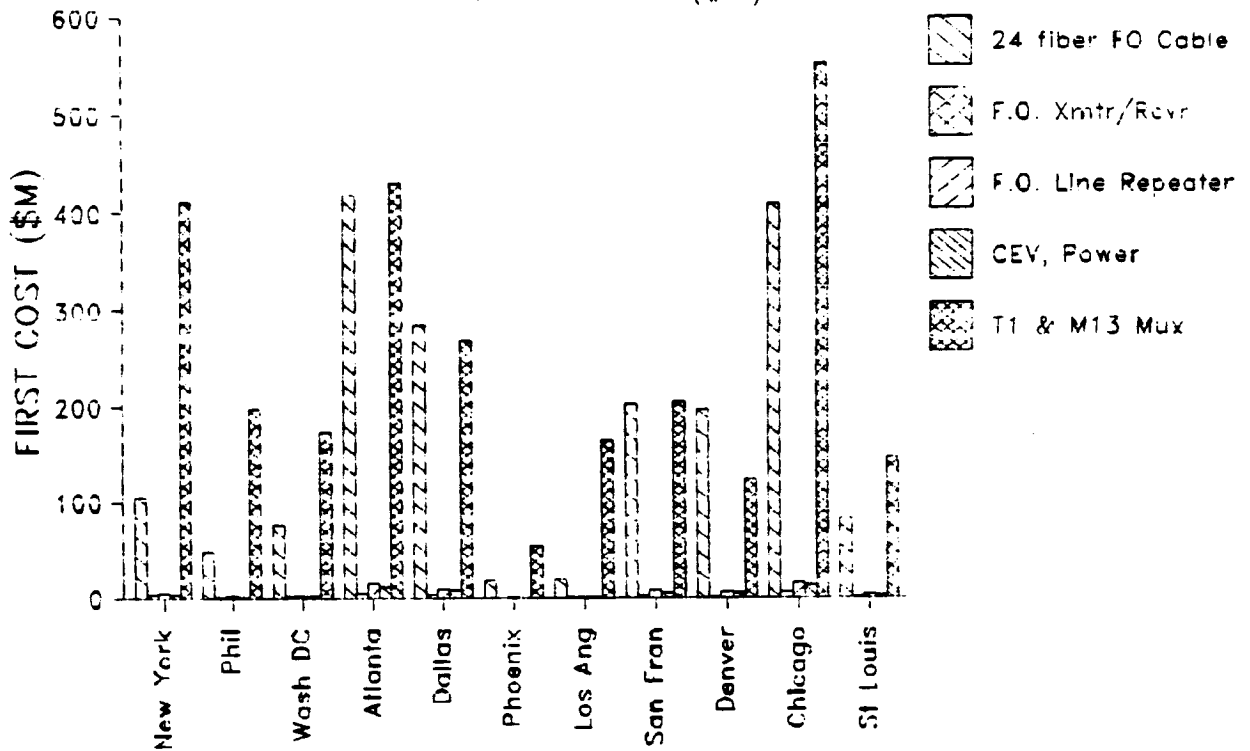


EXHIBIT 6.76: 11 NODE LATA ACCESS NETWORK - 1995 TRAFFIC

24F FO CABLE, 405 mbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

Traffic Factor 1.955
Mileage Factor 1.35
Initial Fill .8

	Node	1	2	3	4	5	6	7	8	9	10	11
	City	New York	Phil	Wash DC	Atlanta	Dallas	Phoenix	Los Ang	San Fran	Denver	Chicago	St Louis
Actual Traffic		1507857	731469	633310	1490844	945576	208322	692673	749357	445731	1954993	535127
VF Ccts Req'd		1301815	590440	553799	1684586	987659	123761	173349	628947	407978	2013068	455826
Total VF Channels		1627268	738050	692248	2105733	1234574	154701	216687	786184	509973	2516335	569782
Total VF Circuits		2356027	1142920	989547	2329444	1477463	325504	1082301	1170870	696455	3054676	836136
Circuit Miles(000)		5273843	1011064	1690976	27426007	11068724	90957	139538	5071165	3199063	32564477	1505975
First Cost (\$000)												
24 fiber FO Cable		55759	25106	35565	205395	132329	8396	11364	105293	89579	213562	42330
24f Ca Splicing		3772	1698	2406	13894	8952	568	769	7123	6060	14447	2864
Cable Installation		51336	21699	38693	206307	142015	9313	10200	102174	99364	204969	41866
F.O. Xmtr/Rcvr		5760	2628	2808	8388	5112	576	900	3060	2052	9792	2196
F.O. Line Repeater		8592	3804	3360	24228	12924	1296	1176	11760	7992	21696	5508
CEV, Power		3535	1540	2870	12320	8470	560	805	5600	5355	12845	2520
T1 & M13 Mux		704681	337890	296980	736205	459134	91884	282245	348695	210830	946198	249607
GRAND TOTAL - FC		833435	394366	382682	1206738	768935	112593	307459	583704	421231	1423530	346891
\$ per mile (000)		.257	.288	.157	.93	.86	.192	.477	.90	.67	.110	.131
\$/cct-mi		.158	.390	.226	.044	.069	1.238	2.203	.115	.132	.044	.230
\$/circuit		353.75	345.05	386.72	518.04	520.44	345.90	284.08	498.52	604.82	466.02	414.87
Annual Cost (\$000)												
24 fiber FO Cable		22480	10122	14339	82808	53350	3385	4582	42450	36115	86100	17066
24f Ca Splicing		1521	685	970	5602	3609	229	310	2872	2443	5824	1154
Cable Installation		20697	8748	15600	83175	57255	3755	4112	41193	40060	82644	16879
F.O. Xmtr/Rcvr		3613	1648	1761	5261	3206	361	565	1919	1287	6142	1377
F.O. Line Repeater		5389	2386	2108	15197	8106	813	738	7376	5013	13609	3455
CEV, Power		1417	617	1150	4937	3394	224	323	2244	2146	5148	1010
T1 & M13 Mux		442004	211938	186278	461777	287987	57633	177035	218716	132241	593493	156563
GRAND TOTAL - AC		497120	236145	222205	658758	416909	66400	187664	316770	219305	792960	197505
\$ per mile (000)		.153	.172	.91	.51	.47	.113	.291	.49	.35	.61	.75
\$/cct-mi		.094	.234	.131	.024	.038	.730	1.345	.062	.069	.024	.131
\$/circuit		211.00	206.62	224.55	282.80	282.18	203.99	173.39	270.54	314.89	259.59	236.21

EXHIBIT 6.76A: 11 NODE LATA ACCESS (1995)

FIRST COST (\$M)

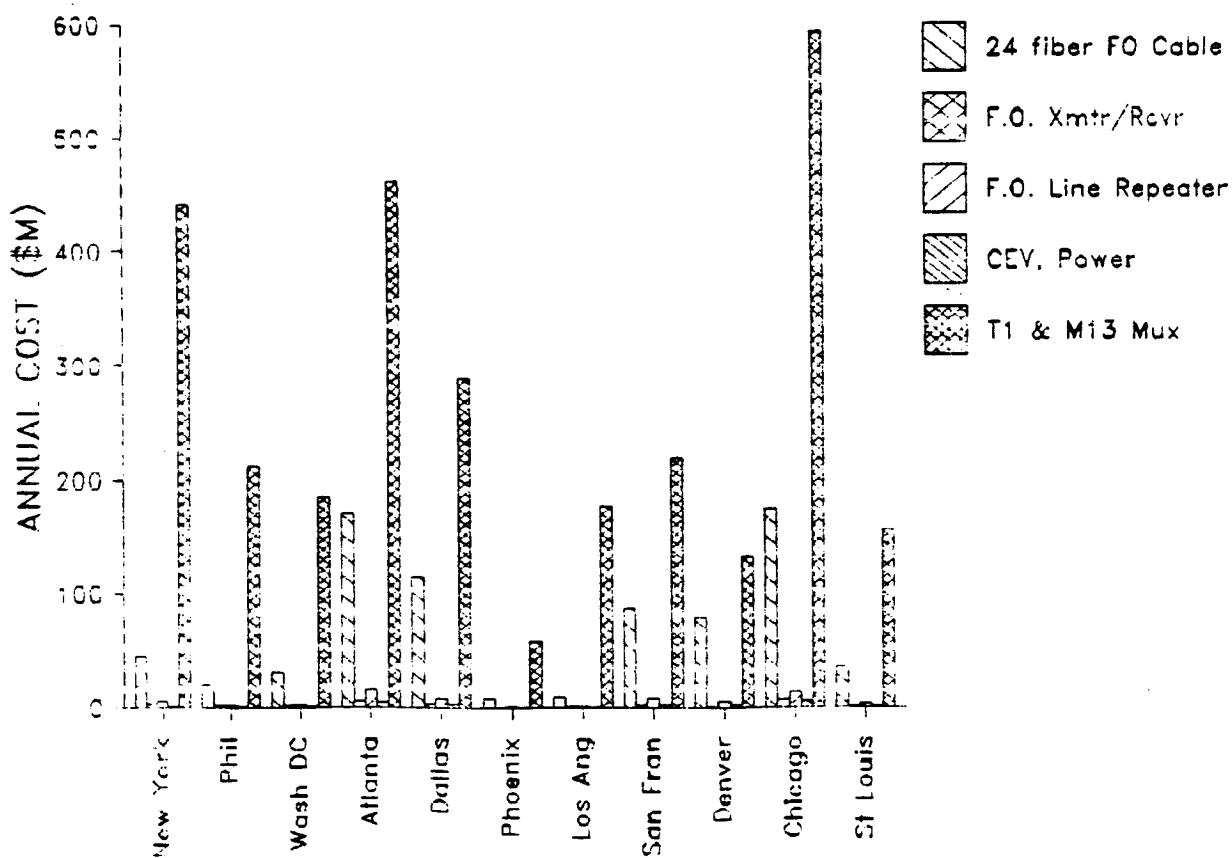
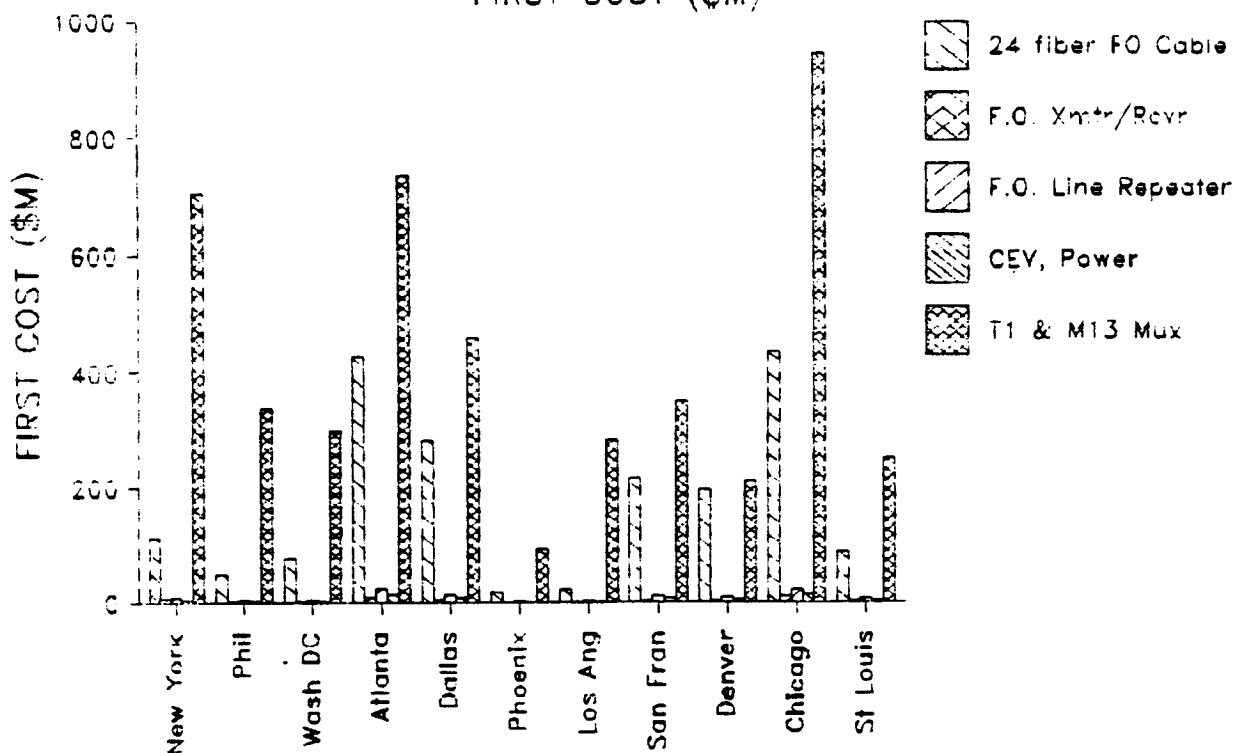


EXHIBIT 6.77: 11 NODE LATA ACCESS NETWORK - 1995 TRAFFIC + 30%

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

Traffic Factor 2.5415
Mileage Factor 1.35
Initial Fill .8

	Node	1	2	3	4	5	6	7	8	9	10	11
	City	New York	Phil	Wash DC	Atlanta	Dallas	Phoenix	Los Ang	San Fran	Denver	Chicago	St Louis
Actual Traffic		1960214	950910	823303	1938098	1229249	270819	900474	974164	579451	2541491	695665
VF Ccts Req'd		1692359	767572	719938	2189962	1283957	160889	225354	817631	530372	2616988	592574
Total VF Channels		2115449	959465	899923	2737452	1604947	201111	281693	1022039	662965	3271235	740717
Total VF Circuits		3062835	1485796	1286411	3028277	1920702	423155	1406991	1522131	905392	3971079	1086977
Circuit Miles(000)		6855996	1314383	2198269	35653810	14389341	118244	181400	6592515	4158782	42333820	1957767
First Cost (\$000)												
24 fiber FO Cable		68906	33883	35565	227963	140241	8396	11364	115683	96707	228546	42330
24f Ca Splicing		4661	2292	2406	15421	9487	568	769	7826	6542	15460	2864
Cable Installation		51336	21699	38693	206307	142015	9313	10200	102174	99364	204989	41866
F.O. Xmtr/Rcvr		7272	3420	3420	10332	6192	684	1116	3816	2520	12420	2664
F.O. Line Repeater		10788	4956	4020	30012	15612	1548	1464	14832	9852	27468	6732
CEV, Power		3535	1540	2870	12320	8470	560	805	5600	5355	12845	2520
T1 & M13 Mux		916178	439217	385862	956979	596548	119432	366829	453083	273932	1229613	324289
GRAND TOTAL - FC		1062676	507008	472837	1459334	918565	140501	392548	703013	494272	1731342	423265
\$ per mile (000)		328	370	194	112	102	239	610	109	79	134	160
\$/cct-mi		.155	.386	.215	.041	.064	1.188	2.164	.107	.119	.041	.216
\$/circuit		346.96	341.24	367.56	481.90	478.24	332.03	279.00	461.86	545.92	435.99	389.40
Annual Cost (\$000)												
24 fiber FO Cable		27780	13661	14339	91906	56540	3385	4582	46639	38989	92141	17066
24f Ca Splicing		1879	924	970	6217	3825	229	310	3155	2637	6233	1154
Cable Installation		20697	8748	15600	83175	57255	3755	4112	41193	40060	82644	16879
F.O. Xmtr/Rcvr		4561	2145	2145	6481	3884	429	700	2394	1581	7790	1671
F.O. Line Repeater		6767	3109	2522	18825	9792	971	918	9303	6180	17229	4223
CEV, Power		1417	617	1150	4937	3394	224	323	2244	2146	5148	1010
T1 & M13 Mux		574663	275494	242028	600255	374179	74913	230090	284192	171821	771262	203407
GRAND TOTAL - AC		637764	304698	278753	811797	508869	83906	241035	389120	263414	982448	245410
\$ per mile (000)		197	222	114	62	57	143	374	60	42	76	93
\$/cct-mi		.093	.232	.127	.023	.035	.710	1.329	.059	.063	.023	.125
\$/circuit		208.23	205.07	216.69	268.07	264.94	198.29	171.31	255.64	290.94	247.40	225.77

EXHIBIT 6.77A:11 NODE LATA ACCESS(1995+30) FIRST COST (\$M)

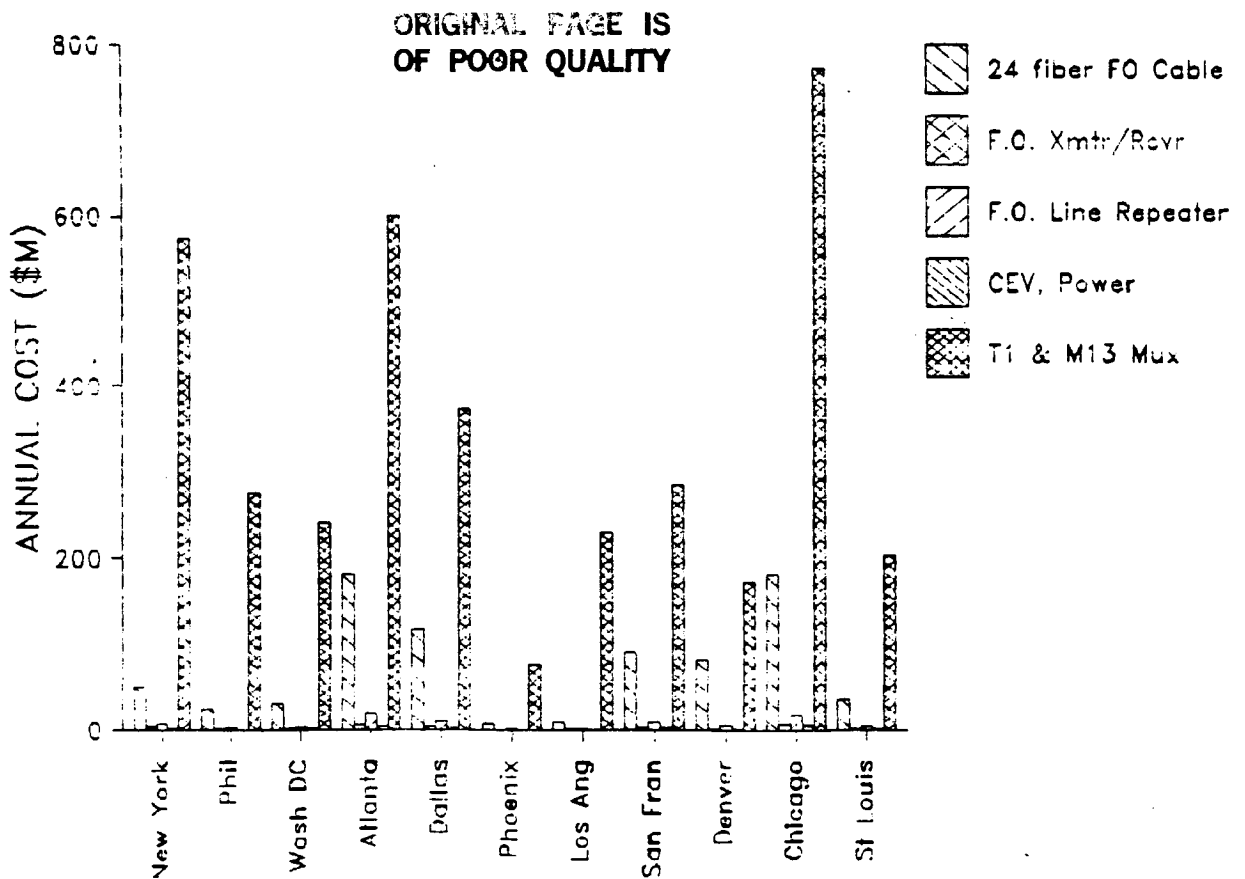
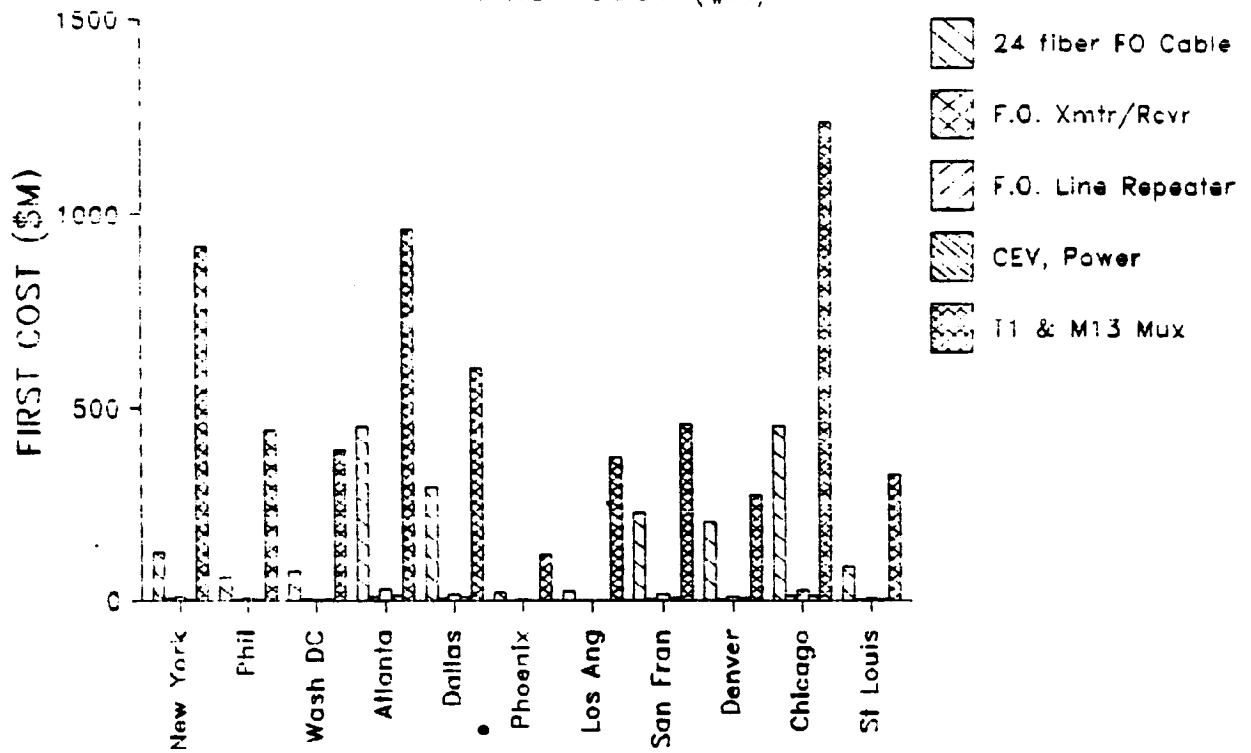


EXHIBIT 6.78: 11 NODE LATA ACCESS NETWORK - 1995 TRAFFIC - 30%

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

Traffic Factor 1.3685
Mileage Factor 1.35
Initial Fill .8

	Node City	1 New York	2 Phil	3 Wash DC	4 Atlanta	5 Dallas	6 Phoenix	7 Los Ang	8 San Fran	9 Denver	10 Chicago	11 St Louis
Actual Traffic		1055500	512028	443317	1043591	661903	145826	484871	524550	312012	1368495	374589
VF Ccts Req'd		911270	413308	387659	1179210	691362	86632	121345	440263	285585	1409147	319078
Total VF Channels		1139088	516635	484574	1474013	864202	108290	151681	550329	356981	1761434	398848
Total VF Circuits		1649219	800044	692683	1630611	1034224	227853	757611	819609	487519	2138273	585295
Circuit Miles(000)		3691690	707745	1183683	19198205	7748107	63670	97677	3549816	2239344	22795134	1054182
First Cost (\$000)												
24 fiber FO Cable		52147	24522	34882	197420	132329	8396	9196	92111	89579	189362	37743
24f Ca Splicing		3528	1659	2360	13355	8952	568	622	6231	6060	12810	2553
Cable Installation		51336	21699	38693	206307	142015	9313	10200	102174	99364	204989	41866
F.O. Xmtr/Rcvr		4140	1908	2232	6372	3888	432	684	2376	1692	7596	1620
F.O. Line Repeater		6228	2784	2712	18432	9852	936	900	8904	6720	16824	4092
CEV, Power		3535	1540	2870	12320	8470	560	805	5600	5355	12845	2520
T1 & M13 Mux		493452	236557	207976	515525	321667	64388	197602	244325	147674	662555	174767
GRAND TOTAL - FC		614366	290669	291724	969731	627173	84593	220009	461721	356444	1106981	265162
\$ per mile (000)		190	212	119	74	70	144	342	72	57	86	100
\$/cct-mi		.166	.411	.246	.051	.081	1.329	2.252	.130	.159	.049	.252
\$/circuit		372.52	363.32	421.15	594.70	606.42	371.26	290.40	563.34	731.14	517.70	453.04
Annual Cost (\$000)												
24 fiber FO Cable		21024	9886	14063	79592	53350	3385	3707	37136	36115	76344	15217
24f Ca Splicing		1422	669	951	5384	3609	229	251	2512	2443	5164	1029
Cable Installation		20697	8748	15600	83175	57255	3755	4112	41193	40060	82644	16879
F.O. Xmtr/Rcvr		2597	1197	1400	3997	2439	271	429	1490	1061	4765	1016
F.O. Line Repeater		3906	1746	1701	11561	6180	587	565	5585	4215	10553	2567
CEV, Power		1417	617	1150	4937	3394	224	323	2244	2146	5148	1010
T1 & M13 Mux		309513	148378	130451	323358	201762	40387	123944	153250	92627	415581	109621
GRAND TOTAL - AC		360575	171242	165316	512005	327989	48838	133330	243410	178667	600198	147339
\$ per mile (000)		111	125	68	39	37	83	207	38	28	46	56
\$/cct-mi		.098	.242	.140	.027	.042	.767	1.365	.069	.080	.026	.140
\$/circuit		218.63	214.04	238.66	314.00	317.14	214.34	175.99	296.98	366.48	280.69	251.73

EXHIBIT 6.78A:11 NODE LATA ACCESS(1995-30)

FIRST COST (\$M)

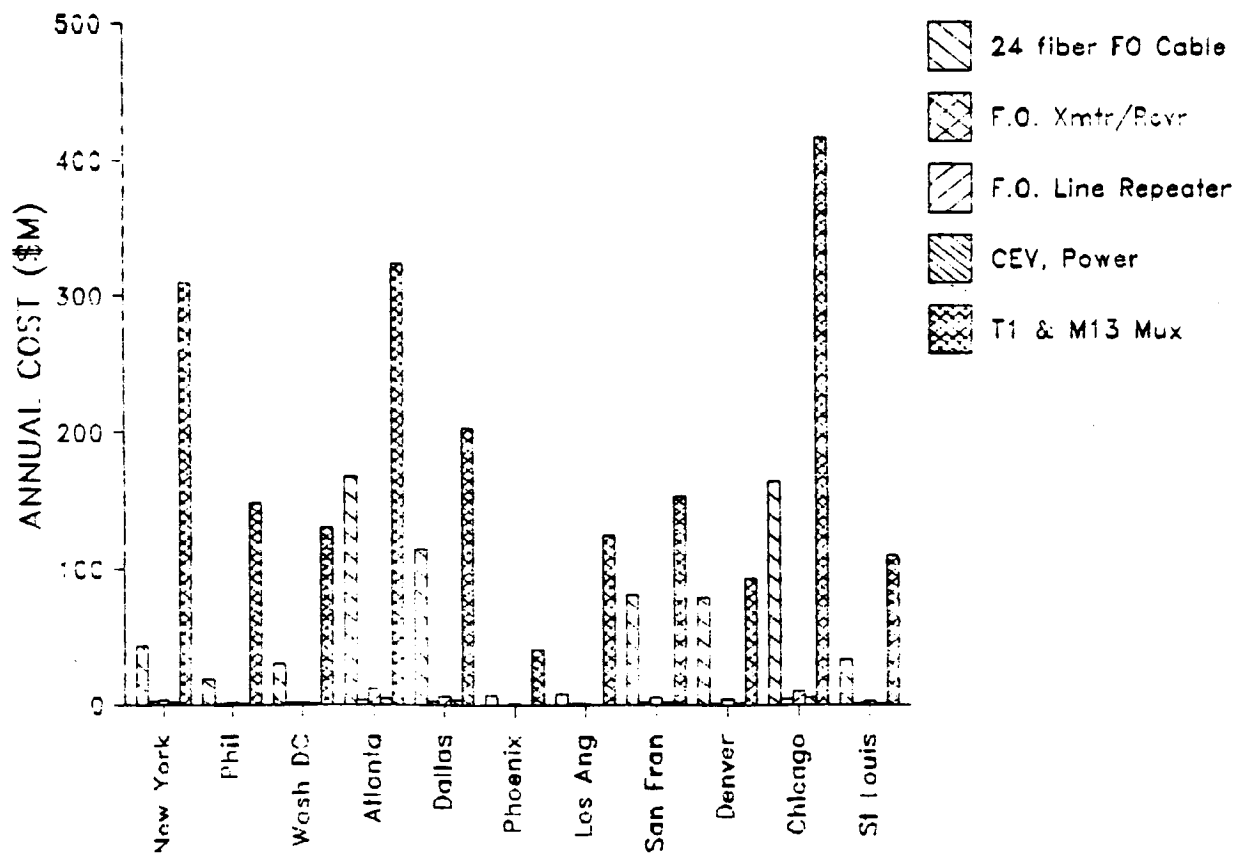
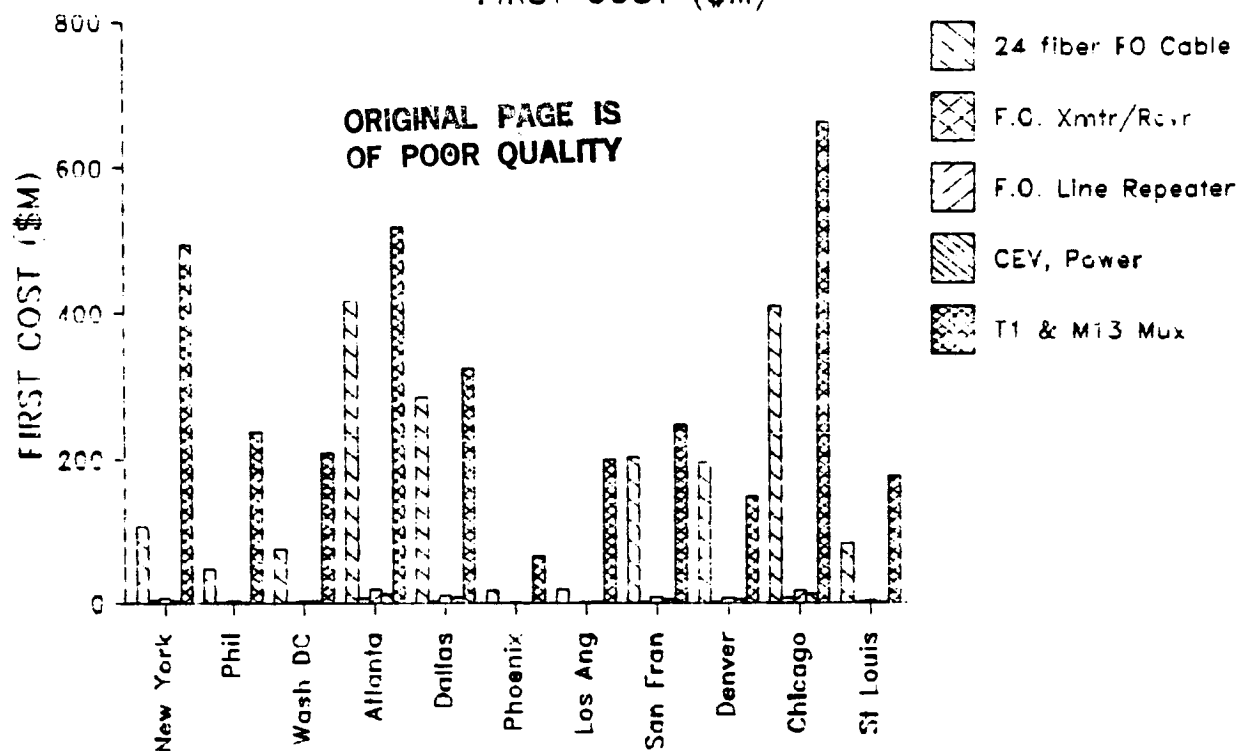


EXHIBIT 6.79: 11 NODE LATA ACCESS NETWORK - 2000 TRAFFIC

24F FO CABLE, 405 mbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

Traffic Factor 3.2775
Mileage Factor 1.35
Initial Fill .8

	Node	1	2	3	4	5	6	7	8	9	10	11
	City	New York	Phil	Wash DC	Atlanta	Dallas	Phoenix	Los Ang	San Fran	Denver	Chicago	St Louis
Actual Traffic		2527878	1226286	1061726	2499357	1585231	349246	1161245	1256275	747256	3277488	897125
VF Ccts Req'd		2182454	989855	928427	2824159	1655782	207481	290615	1054411	683964	3374849	764179
Total VF Channels		2728068	1237319	1160534	3530199	2069727	259351	363269	1318014	854955	4218561	955223
Total VF Circuits		3949809	1916072	1658947	3905245	2476923	545698	1814446	1962930	1167587	5121075	1401757
Circuit Miles(000)		8841443	1695018	2834872	45978895	18556390	152486	233932	8501659	5363135	54593388	2524722
First Cost (\$000)												
24 fiber FO Cable		77115	33883	40901	260686	154991	14738	11364	130291	96707	237187	60499
24f Ca Splicing		5217	2292	2767	17635	10485	997	769	8814	6542	16045	4093
Cable Installation		51336	21699	38693	206307	142015	9313	10200	102174	99364	204989	41866
F.O. XmtR/Rcvr		9252	4248	4320	12816	7668	900	1332	4788	3132	15192	3348
F.O. Line Repeater		13716	6132	5112	37308	19272	2052	1752	18480	12204	33552	8532
CEV, Power		3535	1540	2870	12320	8470	560	805	5600	5355	12845	2520
T1 & M13 Mux		1181213	566322	497578	1233551	769363	154023	473007	584170	353140	1585431	418269
GRAND TOTAL - FC		1341383	636117	592240	1780622	1112264	182583	499229	854316	576444	2105242	539127
\$ per mile (000)		414	464	242	137	124	311	775	132	92	163	204
\$/cct-mi		.152	.375	.209	.039	.060	1.197	2.134	.100	.107	.039	.214
\$/circuit		339.61	331.99	357.00	455.96	449.05	334.59	275.14	435.22	493.71	411.09	384.61
Annual Cost (\$000)												
24 fiber FO Cable		31090	13661	16490	105099	62487	5942	4582	52529	38989	95625	24391
24f Ca Splicing		2103	924	1115	7110	4227	402	310	3553	2637	6469	1650
Cable Installation		20697	8748	15600	83175	57255	3755	4112	41193	40060	82644	16879
F.O. XmtR/Rcvr		5803	2665	2710	8039	4810	565	835	3003	1965	9529	2100
F.O. Line Repeater		8603	3846	3206	23401	12088	1287	1099	11591	7655	21045	5352
CEV, Power		1417	617	1150	4937	3994	224	323	2244	2146	5148	1010
T1 & M13 Mux		740904	355219	312101	773732	482575	96609	296688	366414	221503	994445	262355
GRAND TOTAL - AC		810617	385680	352372	1005493	626836	108784	307950	480528	314955	1214905	313736
\$ per mile (000)		250	282	144	77	70	185	478	74	50	94	119
\$/cct-mi		.092	.228	.124	.022	.034	.713	1.316	.057	.059	.022	.124
\$/circuit		205.23	201.29	212.41	257.47	253.07	199.35	169.72	244.80	269.75	237.24	223.82

EXHIBIT 6.79A: 11 NODE LATA ACCESS (2000)

FIRST COST (\$M)

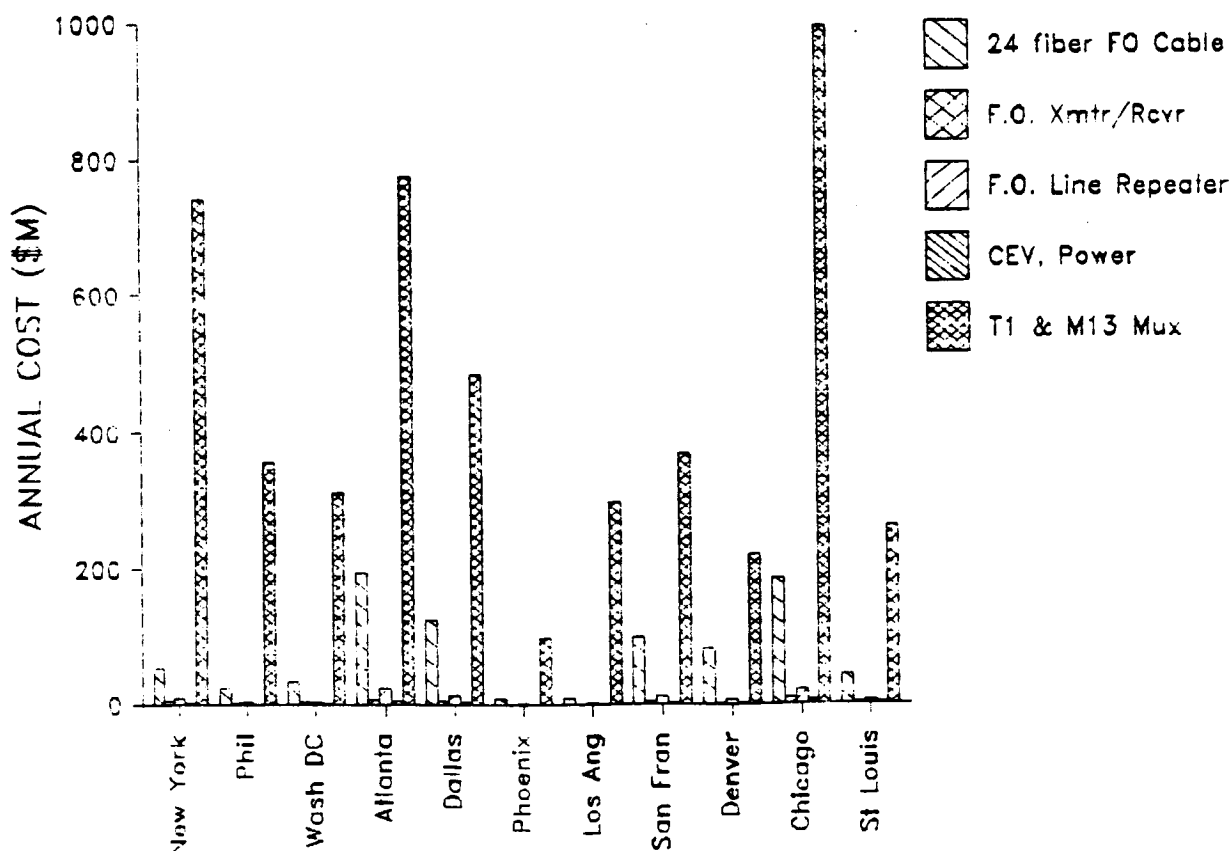
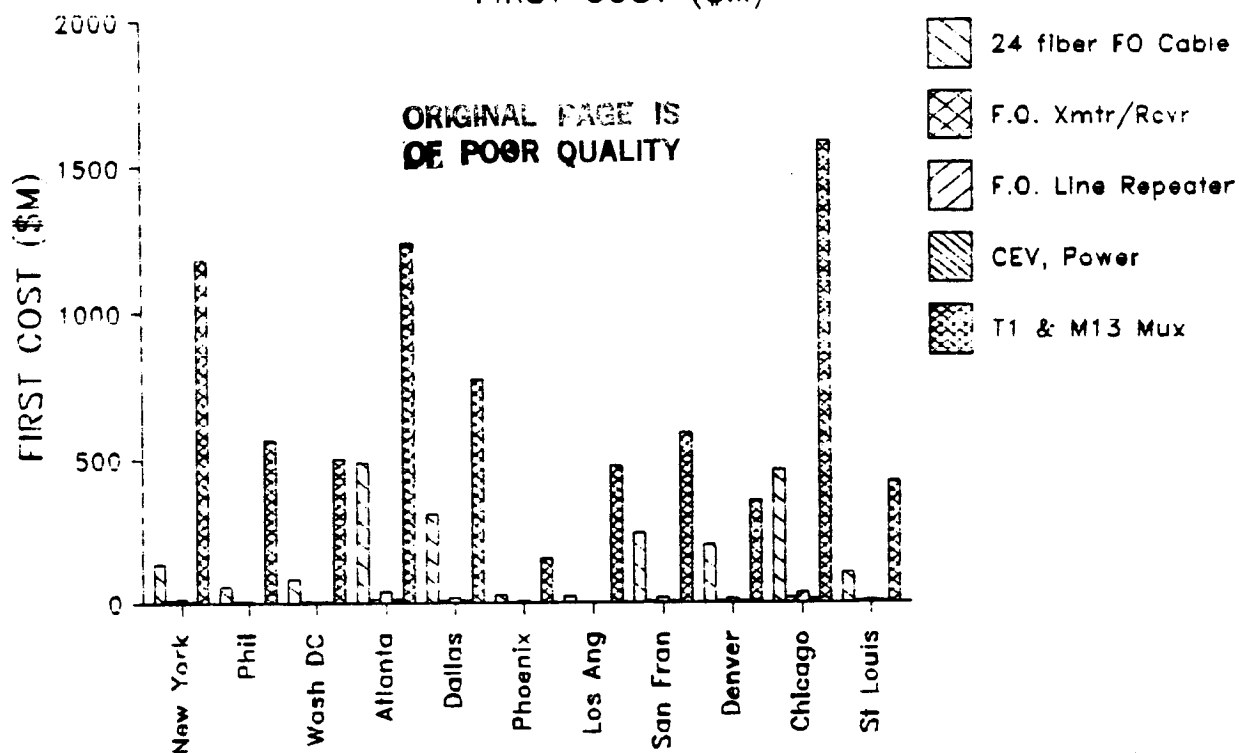
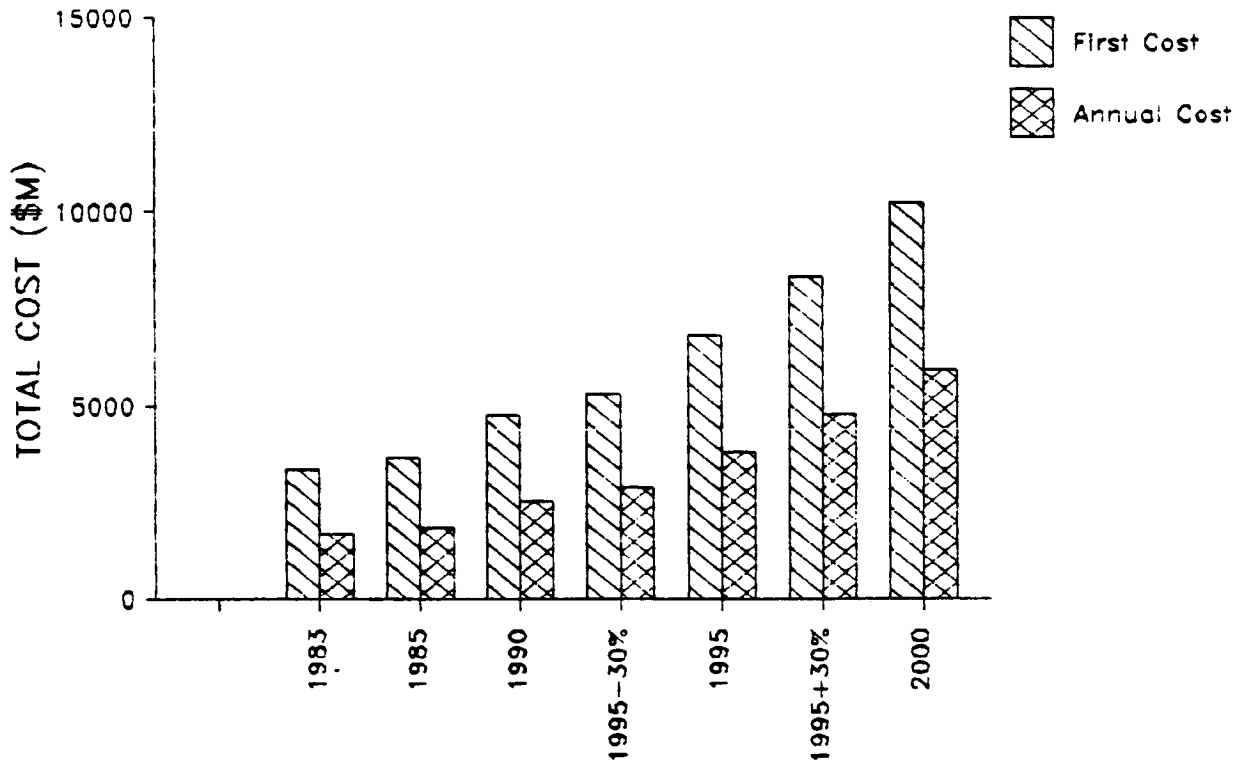


EXHIBIT 6.80: LATA ACCESS LINK SUMMARY - 11-NODE NETWORK

	1983	1985	1990	1995-30%	1995	1995+30%	2000
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
FIRST COST (\$000)							
New York	313452	356227	526796	614366	833435	1062676	1341383
Phil	147769	167481	250637	290669	394366	507008	636117
Wash, DC	166724	183943	256472	291724	382682	472837	592240
Atlanta	667606	713670	880231	969731	1206738	1459334	1780622
Dallas	439742	467166	572238	627173	768935	918565	1112264
Phoenix	46397	51928	73587	84593	112593	140501	182583
Los Ang	103161	119687	186834	220009	307459	392548	499229
San Fran	321959	343426	419583	461721	583704	703013	854316
Denver	274197	287430	330854	356444	421231	494272	576444
Chicago	715036	770622	994065	1106981	1423530	1731342	2105242
St Louis	161728	176790	235229	265162	346891	423265	539127
TOTAL FC	3357770	3638368	4728529	5288572	6781566	8305361	10219568
\$000/mi	57	62	81	90	116	142	174
\$/cct-mi	.018	.016	.012	.012	.010	.010	.009
\$/cct	748.14	672.59	524.47	488.64	438.61	413.21	394.27
ANNUAL COST (\$000)							
New York	171801	198138	307398	360575	497120	637764	810617
Phil	81379	93743	146132	171242	236145	304698	385680
Wash, DC	86514	97315	143204	165316	222205	278753	352372
Atlanta	320432	349325	455867	512005	658758	811797	1005493
Dallas	209014	226216	293532	327989	416909	508869	626836
Phoenix	24784	28254	41935	48838	66400	83906	108784
Los Ang	59936	70301	112522	133330	187664	241035	307950
San Fran	154724	168189	216980	243410	316770	389120	480528
Denver	126088	134388	162617	178667	219305	263414	314955
Chicago	352309	387175	529373	600198	792960	982448	1214905
St Louis	82040	91488	128564	147339	197505	245410	313736
TOTAL AC	1669022	1844531	2538123	2888911	3811741	4747213	5921856
\$000/mi	28	31	43	49	65	81	101
\$/cct-mi	.009	.008	.007	.006	.006	.006	.005
\$/cct	371.87	340.98	281.52	266.92	246.53	236.18	228.46

EXHIBIT 6.80A: 11 NODE LATA ACCESS

TOTAL COST



TOTAL COST PER CIRCUIT

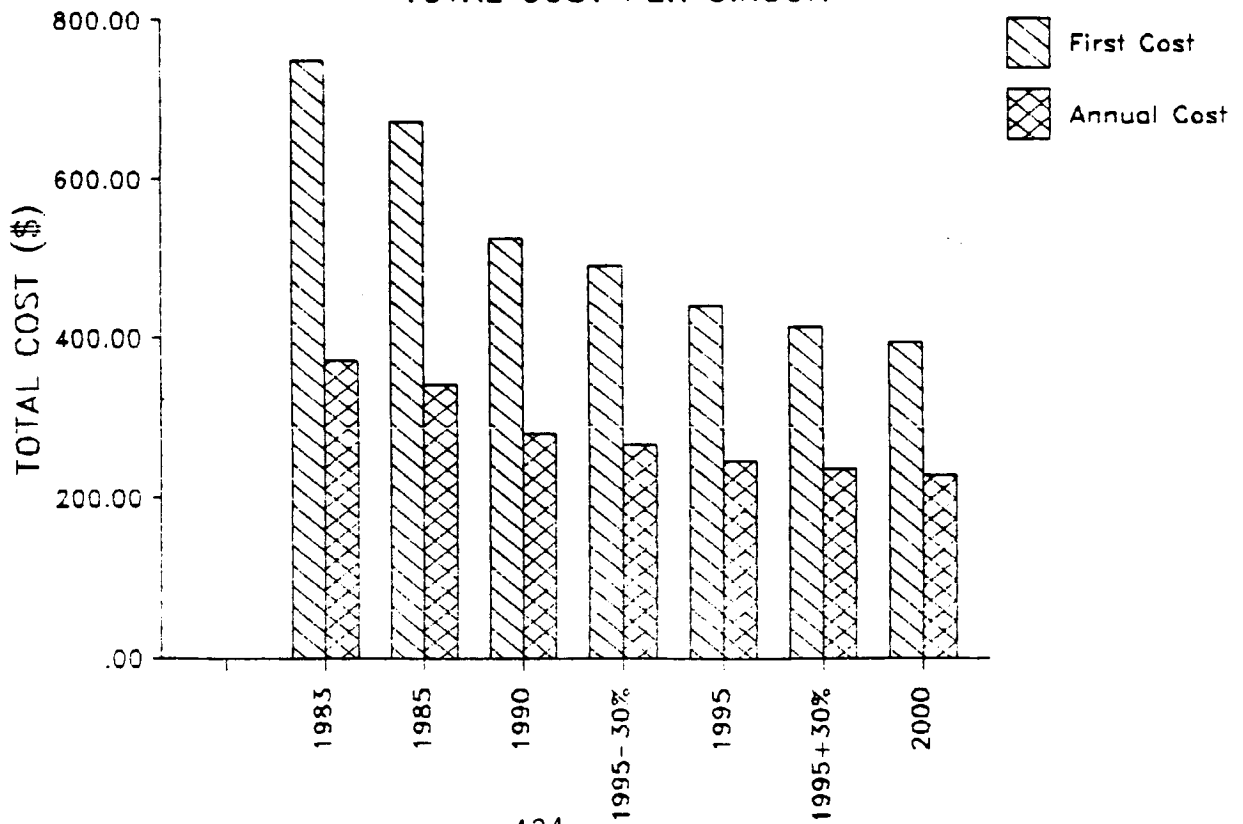
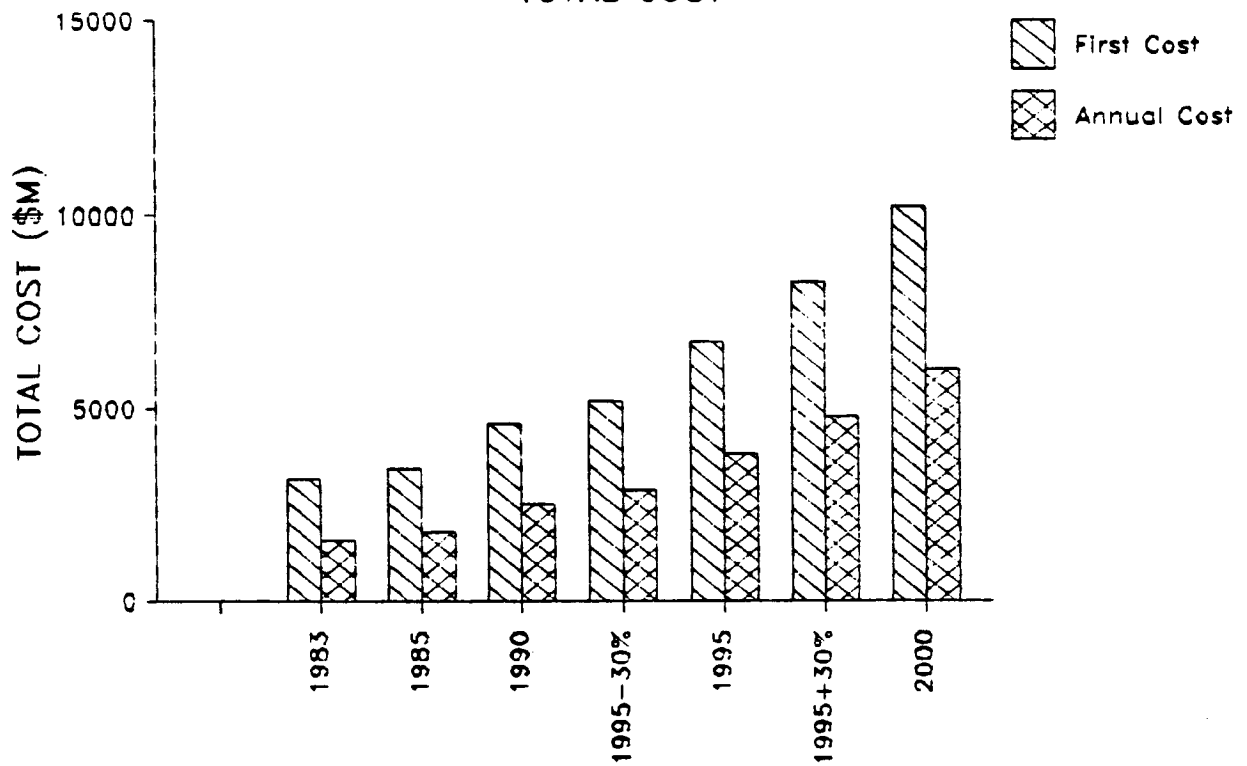


EXHIBIT 6.81: DATA ACCESS LINK SUMMARY - 15-NODE NETWORK

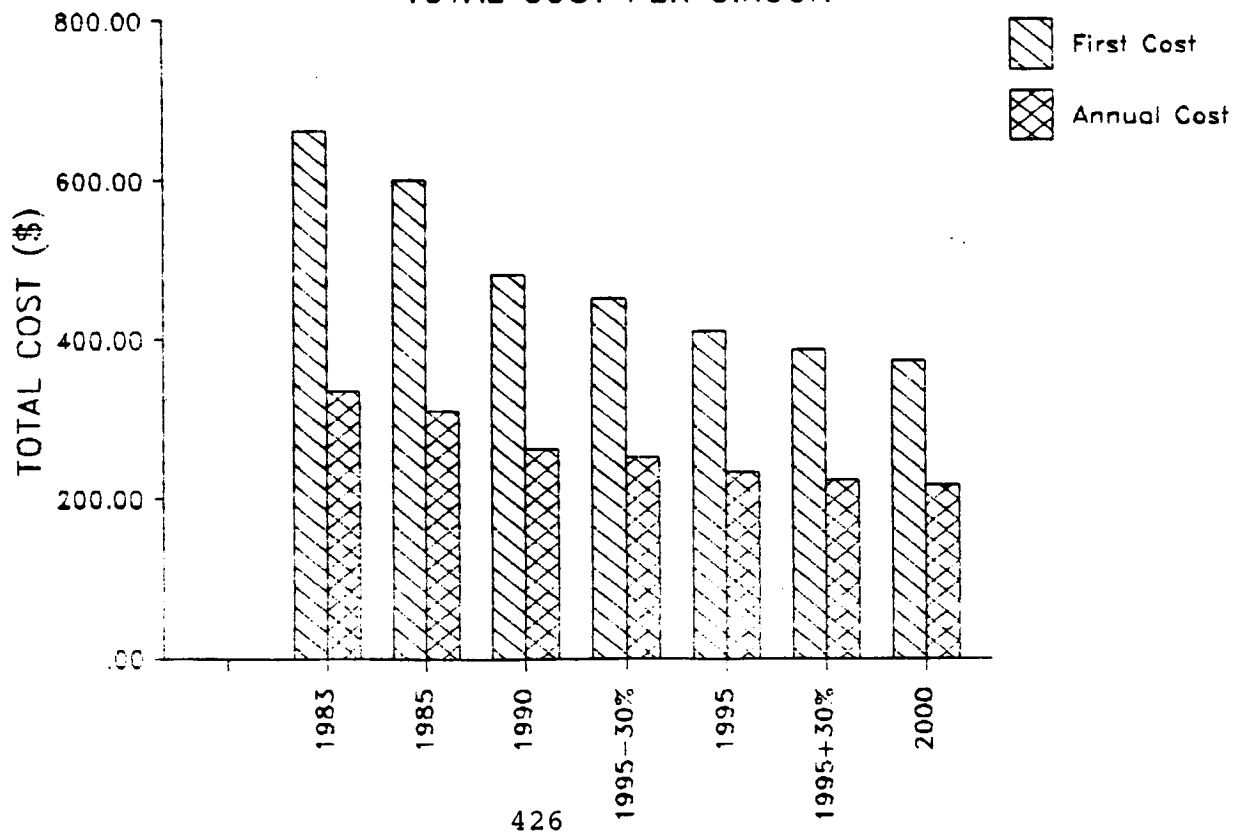
	1983	1985	1990	1995-30%	1995	1995+30%	2000
Tr Factor	.5675	.684	1.14	1.3695	1.955	2.5415	3.2775
M Factor	1.35						
Init Fill	.8						
FIXED COST (\$000)							
New York	213289	248267	386188	455370	627227	811266	1029902
Phil	147116	166657	248994	288890	391658	503543	631646
Wash, DC	166765	183996	256537	291807	382853	473141	592516
Atlanta	435990	469990	602318	669999	850357	1035990	1267135
Dallas	437769	465540	568711	623439	763850	911437	1103132
Phoenix	46438	51975	73716	84687	112775	140796	182853
Los Ang	103161	119687	186834	220009	307459	392548	499229
San Fran	111176	123470	173390	198181	261486	324902	406242
Denver	274197	287430	330854	356444	421231	494272	576444
Chicago	567031	616818	818540	919134	1199049	1471861	1812571
St Louis	162046	177191	235998	265996	347954	424891	541047
Miami	189621	203293	255724	283018	357158	427351	523694
Seattle	102840	111805	147839	166120	215899	263170	321974
Mpls-St P	101287	110405	148016	166690	214962	262922	328099
Boston	79728	91641	140768	164650	225652	286465	366277
TOTAL FC	3138455	3428162	4574456	5154434	6679560	8224555	10182780
\$000/mi	61	67	89	100	130	160	198
\$/cct-mi	.019	.018	.014	.013	.012	.011	.011
\$/cct	667.10	600.94	481.13	451.61	409.67	388.02	372.52
ANNUAL COST (\$000)							
New York	122038	143484	230748	273649	381398	494106	630592
Phil	80970	93226	145101	170126	234446	302525	382877
Wash, DC	86540	97348	143245	165368	222312	278945	352545
Atlanta	213884	235209	319495	361947	473454	587213	729237
Dallas	207777	225196	291320	325648	413719	504399	621108
Phoenix	24810	28283	42016	48897	66515	84091	108953
Los Ang	59936	70301	112522	133330	187664	241035	307950
San Fran	58536	66247	97802	113347	153054	192831	243523
Denver	126088	134388	162617	178667	219305	263414	314955
Chicago	284956	316185	444203	507300	678140	846250	1056408
St Louis	82240	91740	129046	147862	198172	246429	314941
Miami	92065	100641	134106	151226	196815	240843	299463
Seattle	51740	57363	80243	91710	122252	151908	188793
Mpls-St P	51321	57039	80892	92605	122884	152966	192774
Boston	45016	52490	83421	98388	136651	174795	224116
TOTAL AC	1587919	1769141	2496777	2860069	3806780	4761750	5968232
\$000/mi	31	34	49	56	74	97	116
\$/cct-mi	.010	.009	.008	.007	.007	.007	.006
\$/cct	335.50	310.12	262.61	250.59	233.48	224.65	218.34

EXHIBIT 6.81A: 15 NODE LATA ACCESS

TOTAL COST



TOTAL COST PER CIRCUIT



24f FO CABLE, 405 mbps DIGITAL FO SYSTEM

25 mi Repeater Spacing

Traffic Factor .5675
 Mileage Factor 1.35
 Initial Fill .8

	Node	1	2	3	4	5	6	7	8	9	10	11
	City	New York	Phil	Wash DC	Atlanta	Dallas	El Paso	Los Ang	San Fran	Denver	Chicago	St Louis
Actual Traffic		334899	167774	186083	303858	156263	76732	202073	141458	113271	299351	197962
VF Ccts Req'd		223161	112499	162634	320870	123834	87696	50571	79509	95306	223502	185333
Total VF Channels		278951	140623	203292	401088	154792	109620	63214	99386	119132	279378	231666
Total VF Circuits		523280	262146	290754	474778	244160	119893	315738	221028	176986	467736	309316
Circuit Miles(000)		405299	87333	496588	2954784	361749	259388	40707	151062	479619	1397210	765745
First Cost (\$000)												
24 fiber FO Cable		20938	8868	34882	105200	33372	33790	9196	21705	57490	71416	47201
24f Ca Splicing		1416	600	2360	7116	2258	2286	622	1468	3889	4831	3193
Cable Installation		23015	9837	38693	116692	37018	37481	10200	24076	63771	79218	52357
F.O. XmtR/Rcvr		2052	1080	1980	3672	1404	972	612	972	1116	2808	1908
F.O. Line Repeater		4548	1944	4656	15636	5436	5376	1440	2676	7596	8448	9072
CEV, Power		2660	1330	4620	12460	4060	3885	1260	2695	6335	8925	5460
T1 & M13 Mux		140789	70569	80547	134670	66957	34404	80273	58738	48783	127392	86281
GRAND TOTAL - FC		195419	94229	167738	395447	150505	118194	103603	112331	188980	303038	205472
\$ per mile (000)		134	152	69	54	64	50	161	74	47	61	62
\$/cct-mi		.482	1.079	.338	.134	.416	.456	2.545	.744	.394	.217	.268
\$/circuit		373.45	359.45	576.91	832.91	616.42	985.83	328.13	508.22	1067.77	647.88	664.28
Annual Cost (\$000)												
24 fiber FO Cable		8442	3575	14063	42413	13454	13623	3707	8751	23178	28792	19030
24f Ca Splicing		571	242	951	2869	910	922	251	592	1568	1948	1287
Cable Installation		9279	3966	15600	47046	14924	15111	4112	9707	25710	31938	21109
F.O. XmtR/Rcvr		1287	677	1242	2303	881	610	384	610	700	1761	1197
F.O. Line Repeater		2853	1219	2920	9808	3410	3372	903	1678	4765	5299	5690
CEV, Power		1066	533	1852	4994	1627	1557	505	1080	2539	3577	2188
T1 & M13 Mux		88309	44264	50523	84471	41998	21580	50351	36843	30598	79905	54119
GRAND TOTAL - AC		111806	54477	87150	193903	77204	56774	60213	59260	89058	153220	104619
\$ per mile (000)		77	88	36	26	33	24	94	39	22	31	32
\$/cct-mi		.276	.624	.175	.066	.213	.219	1.479	.392	.186	.110	.137
\$/circuit		213.66	207.81	299.74	408.41	316.20	473.54	190.71	268.11	503.19	327.58	338.23

EXHIBIT 6.82: 17 NODE LATA ACCESS NETWORK - 1983 TRAFFIC

25 mi Repeater Spacing

24F F0 CABLE, 405 mbps DIGITAL F0 SYSTEM

Traffic Factor .5675
 Mileage Factor 1.35
 Initial Fill .8

	Node City	12 Miami	13 Seattle	14 Mpls-St P	15 Boston	16 Houston	17 Cleveland
Actual Traffic		145349	97878	123859	177369	163555	324770
VF Ccts Req'd		118776	75718	111326	131970	134099	369731
Total VF Channels		148470	94647	139157	164963	167623	462164
Total VF Circuits		227107	152934	193529	277140	255555	507453
Circuit Miles(000)		544228	164724	379740	131496	516164	1309461
First Cost (\$000)		52344	24853	38968	13169	43973	42213
24 fiber F0 Cable		3541	1681	2636	891	2975	2856
24f Ca Splicing		58063	27568	43225	12626	48776	44880
Cable Installation		1368	828	1368	1260	1584	3528
F.O. Xmtr/Rcvr		6780	3612	5232	2376	6180	9192
F.O. Line Repeater		5915	2835	4690	1645	5250	5215
CEV, Power		62422	41781	53800	75360	70260	145260
T1 & M13 Mux		190433	103158	149919	107327	178997	253144
GRAND TOTAL - FC		52	59	55	135	58	89
\$ per mile (000)		.350	.626	.395	.816	.347	.193
\$/cct-mi		838.52	674.52	774.66	387.27	700.43	498.85
\$/circuit							
Annual Cost (\$000)		21103	10020	15711	5309	17728	17019
24 fiber F0 Cable		1428	678	1063	359	1199	1151
24f Ca Splicing		23409	11114	17427	5090	19665	18094
Cable Installation		858	519	858	790	994	2213
F.O. Xmtr/Rcvr		4253	2266	3282	1490	3876	5766
F.O. Line Repeater		2371	1136	1880	659	2104	2090
CEV, Power		39153	26207	33745	47269	44070	91113
T1 & M13 Mux		92574	51940	73965	60968	89636	137445
GRAND TOTAL - AC		25	30	27	76	29	49
\$ per mile (000)		.170	.315	.195	.464	.174	.105
\$/cct-mi		407.62	339.62	382.19	219.99	350.75	270.85
\$/circuit							

EXHIBIT 6.82A: 17 NODE LATA ACCESS (1983)

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM

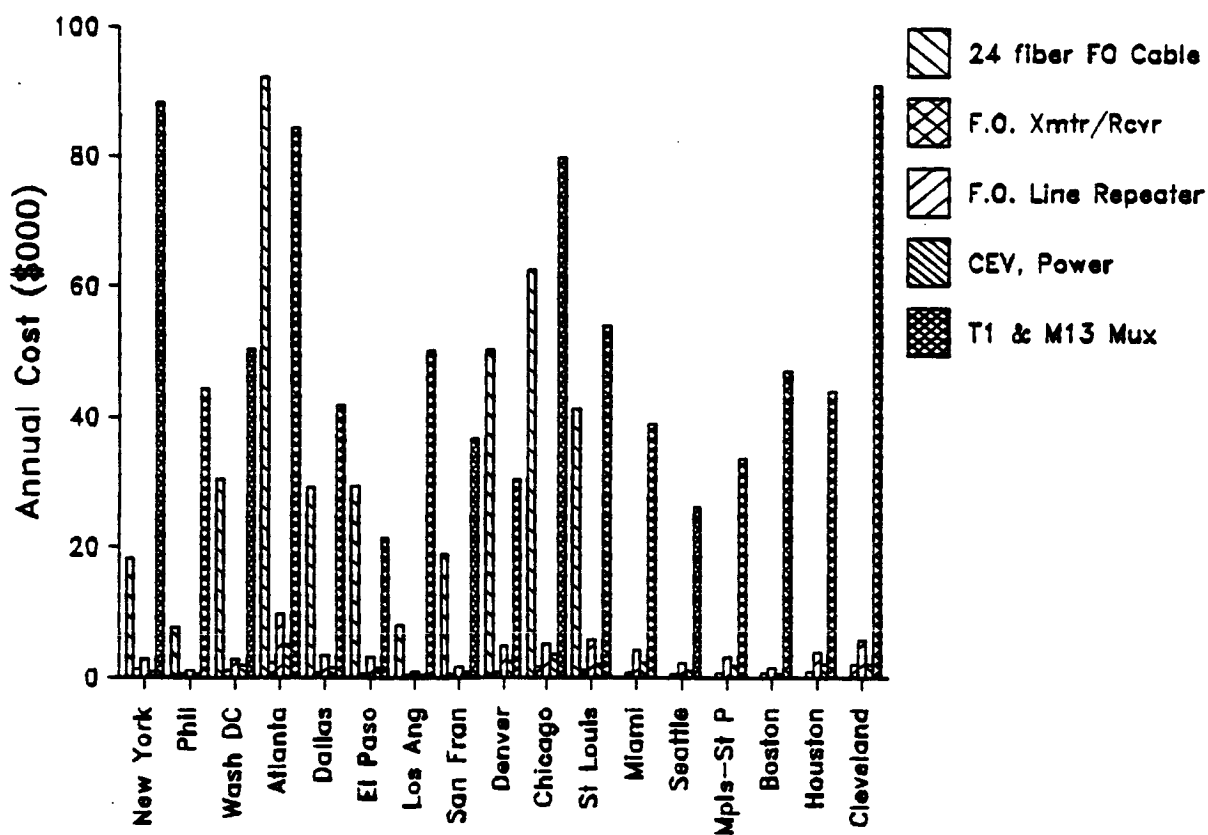
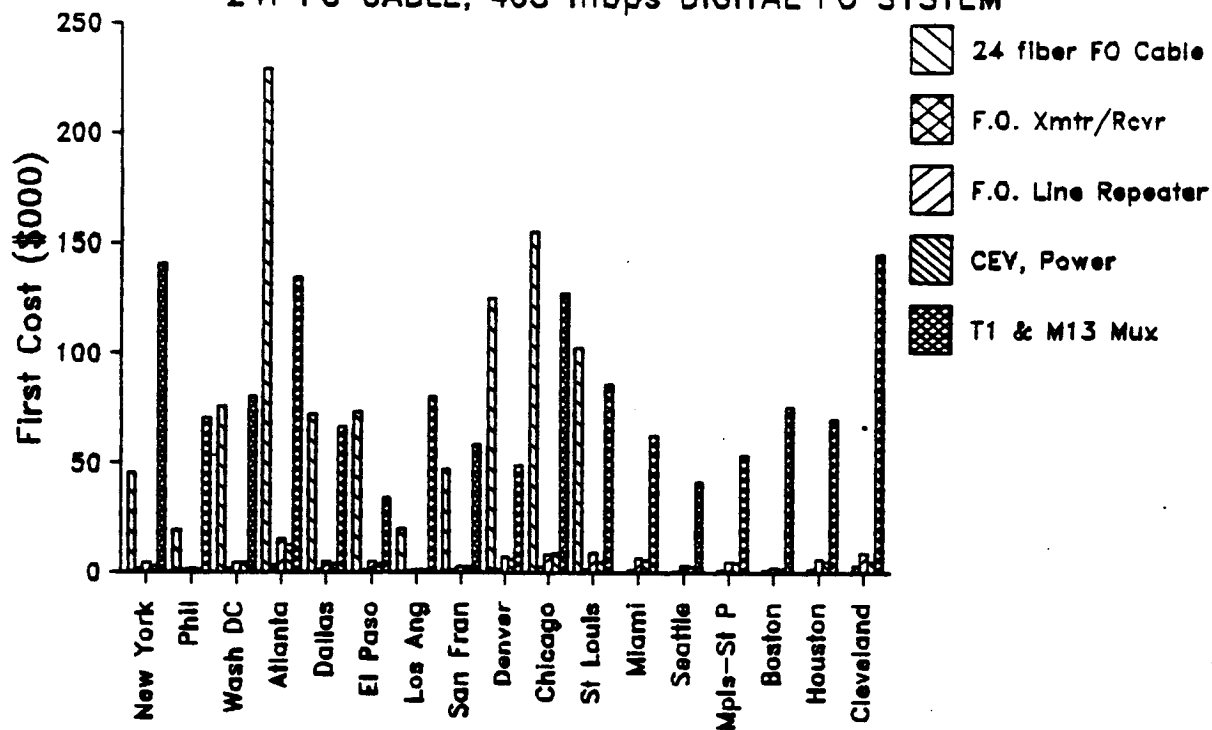


EXHIBIT 6.83: 17 NODE LATA ACCESS NETWORK - 1985 TRAFFIC

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24F FO CABLE, 405 mbps DIGITAL FO SYSTEM

25 mi Repeater Spacing

	1	2	3	4	5	6	7	8	9	10	11
Node City	New York	Phil	Wash DC	Atlanta	Dallas	El Paso	Los Ang	San Fran	Denver	Chicago	St Louis
Traffic Factor	.684										
Mileage Factor	1.35										
Initial Fill	.8										
Actual Traffic	403649	202215	224283	366236	188341	92483	243555	170497	136524	360803	238601
WF Ccts Req'd	268973	135593	196020	386741	149255	105699	60953	95831	114871	269385	223379
Total WF Channels	336216	169491	245025	483426	186569	132123	76191	119788	143588	336731	279224
Total WF Circuits	630702	315961	350442	572243	294283	144505	380555	266401	213318	563755	372814
Circuit Miles(000)	488501	105261	598531	3561361	436011	312637	49064	182073	578078	1684038	922941
First Cost (\$000)											
24 fiber FO Cable	21129	8868	35565	105200	33372	33790	9196	21705	57490	71416	47201
24f Ca Splicing	1429	600	2406	7116	2258	2286	622	1468	3889	4831	3193
Cable Installation	23015	9837	38693	116692	37018	37481	10200	24076	63771	79218	52357
F.O. Xmtr/Rcvr	2448	1260	2268	4212	1584	1116	684	1080	1296	3204	2196
F.O. Line Repeater	5436	2256	5280	18132	6084	6192	1632	3048	8748	9528	10500
CEV, Power	2660	1330	4620	12460	4060	3885	1260	2695	6335	8925	5460
T1 & M13 Mux	169670	85078	97073	162305	80602	41427	96725	70716	58795	153672	104035
GRAND TOTAL - FC	225787	109230	185905	426117	164978	126177	120319	124788	200324	330794	224942
\$ per mile (000)	155	176	76	58	71	53	187	82	50	66	68
\$/cct-mi	.462	1.038	.311	.120	.378	.404	2.452	.685	.347	.196	.244
\$/circuit	357.99	345.71	530.49	744.64	560.61	873.17	316.17	468.42	939.09	586.77	603.36
Annual Cost (\$000)											
24 fiber FO Cable	8518	3575	14339	42413	13454	13623	3707	8751	23178	28792	19030
24f Ca Splicing	576	242	970	2869	910	922	251	592	1568	1948	1287
Cable Installation	9279	3966	15600	47046	14924	15111	4112	9707	25710	31938	21109
F.O. Xmtr/Rcvr	1535	790	1423	2642	994	700	429	677	813	2010	1377
F.O. Line Repeater	3410	1415	3312	11373	3816	3884	1024	1912	5487	5976	6586
CEV, Power	1066	533	1852	4994	1627	1557	505	1080	2539	3577	2188
T1 & M13 Mux	106424	53364	60888	101804	50557	25985	60670	44356	36879	96389	65255
GRAND TOTAL - AC	130808	63886	98382	213140	86282	61781	70698	67074	96173	170630	116832
\$ per mile (000)	90	103	40	29	37	26	110	44	24	34	35
\$/cct-mi	.268	.607	.164	.060	.198	.198	1.441	.368	.166	.101	.127
\$/circuit	207.40	202.20	280.74	372.46	293.19	427.54	185.78	251.78	450.84	302.67	313.38

EXHIBIT 6.83: 17 NODE LATA ACCESS NETWORK - 1985 TRAFFIC Page 2 of 2

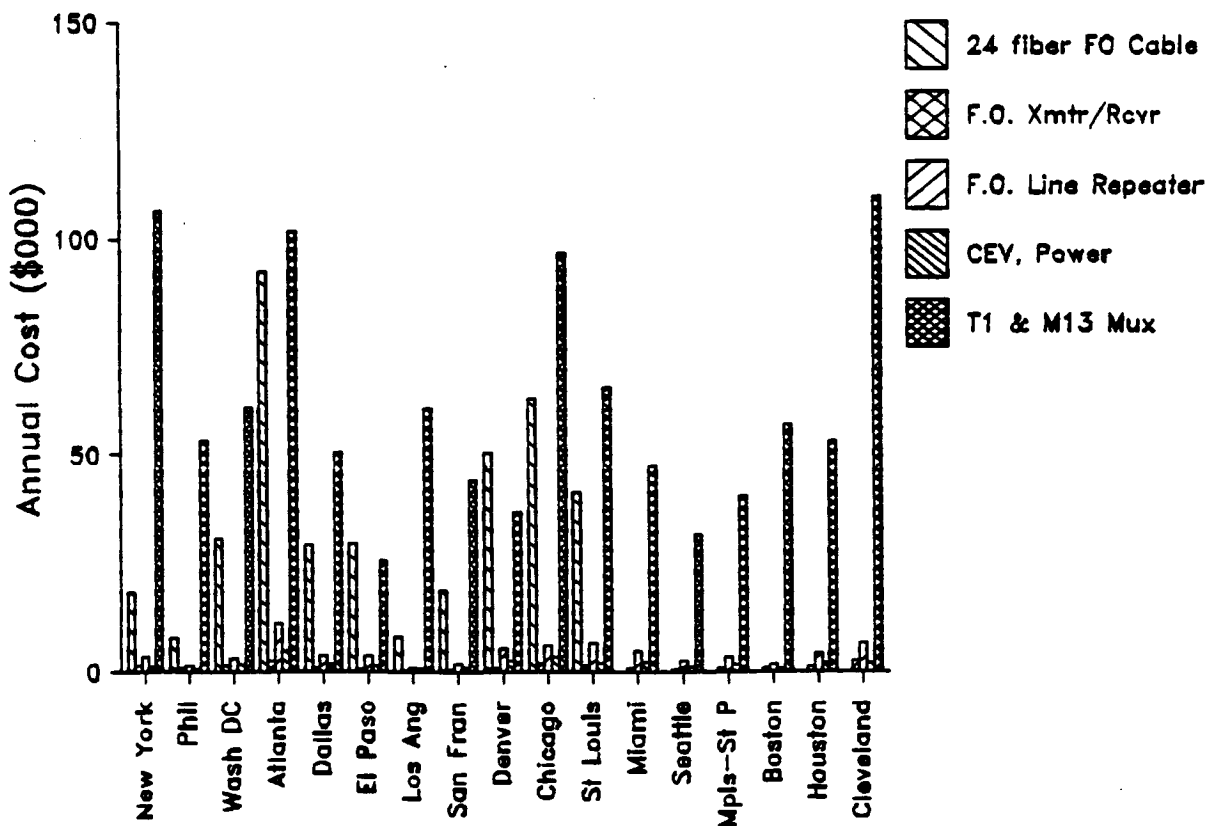
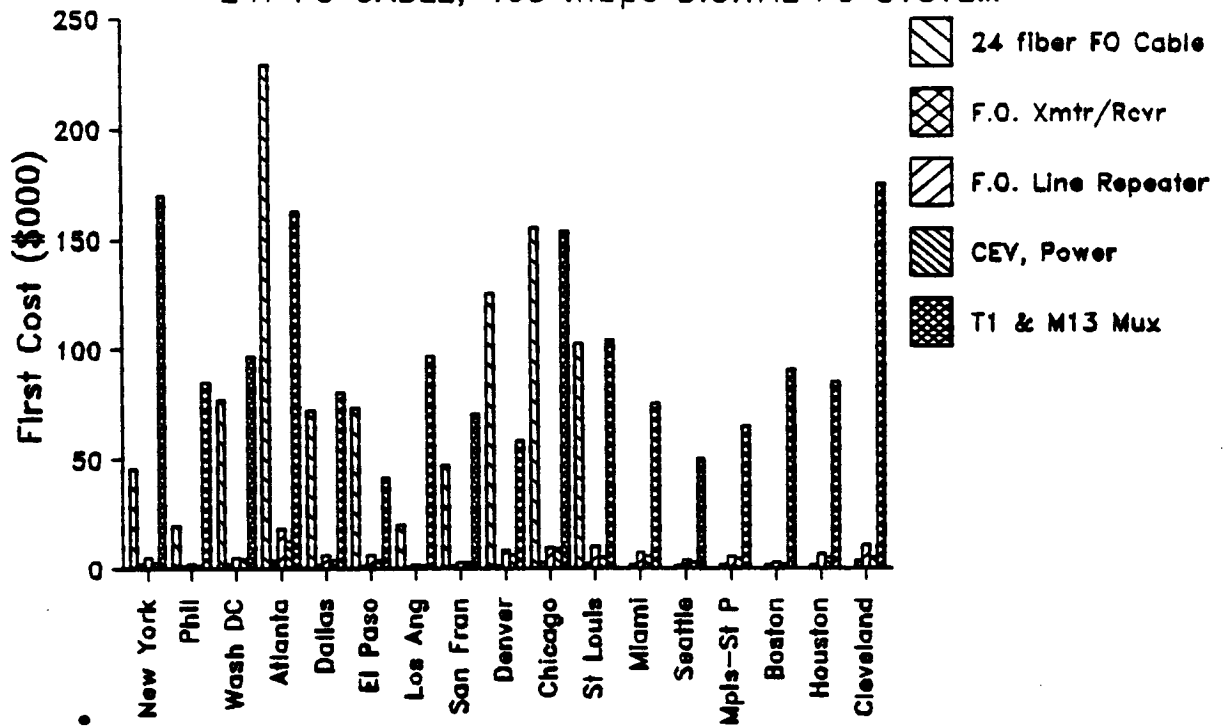
24f FO CABLE, 405 mbps DIGITAL FO SYSTEM 25 mi Repeater Spacing

Traffic Factor .684
Mileage Factor 1.35
Initial Fill .8

Node City	12 Miami	13 Seattle	14 Mpls-St P	15 Boston	16 Houston	17 Cleveland
Actual Traffic	175187	117971	149285	213781	197131	391441
UF Ccts Req'd	143159	91262	134179	159062	161627	445632
Total UF Channels	178949	114077	167724	198828	202034	557040
Total UF Circuits	273729	184330	233258	334033	308017	611626
Circuit Miles(000)	655951	198539	457696	158490	622125	1578276
First Cost (\$000)						
24 fiber FO Cable	52344	24853	38968	13169	43973	46178
24f Ca Splicing	3541	1681	2636	891	2975	3124
Cable Installation	58063	27568	43225	12626	48776	44880
F.O. Xmtr/Rcvr	1548	936	1512	1548	1764	4176
F.O. Line Repeater	7680	4032	5748	2940	6816	10836
CEV, Power	5915	2835	4690	1645	5250	5215
T1 & M13 Mux	75191	50366	64797	90831	84679	174979
GRAND TOTAL - FC	204282	112271	161577	123651	194233	289387
\$ per mile (000)	56	65	59	155	63	102
\$/cct-mi	.311	.565	.353	.780	.312	.183
\$/circuit	746.29	609.08	692.69	370.18	630.59	473.14
Annual Cost (\$000)						
24 fiber FO Cable	21103	10020	15711	5309	17728	18617
24f Ca Splicing	1428	678	1063	359	1199	1259
Cable Installation	23409	11114	17427	5090	19665	18094
F.O. Xmtr/Rcvr	971	587	948	971	1106	2619
F.O. Line Repeater	4817	2529	3605	1844	4275	6797
CEV, Power	2371	1136	1880	659	2104	2090
T1 & M13 Mux	47163	31592	40643	56973	53114	109754
GRAND TOTAL - AC	101261	57656	81277	71206	99192	159230
\$ per mile (000)	28	33	30	89	32	56
\$/cct-mi	.154	.290	.178	.449	.159	.101
\$/circuit	369.93	312.79	348.44	213.17	322.03	260.34

EXHIBIT 6.83A: 17 NODE LATA ACCESS (1985)

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM



24F FO CABLE, 405 mbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

Traffic Factor 1.14
Mileage Factor 1.35
Initial Fill .8

	Node City	1 New York	2 Phil	3 Wash DC	4 Atlanta	5 Dallas	6 El Paso	7 Los Ang	8 San Fran	9 Denver	10 Chicago	11 St Louis
Actual Traffic		672749	337025	373805	610393	313902	154139	405926	284162	227539	601339	397669
VF Ccts Req'd		448288	225989	326700	644568	248758	176164	101588	159718	191451	448974	372299
Total VF Channels		560361	282486	408375	805710	310948	220205	126985	199647	239314	561218	465373
Total VF Circuits		1051170	526602	584070	953739	490472	240842	634259	444002	355530	939592	621367
Circuit Miles(000)		814169	175435	997551	5935602	726685	521062	81774	303454	963464	2806730	1538236
First Cost (\$000)												
24 fiber FO Cable		20938	8868	34882	105200	33372	33790	9196	21705	57490	71416	47201
24f Ca Splicing		1416	600	2360	7116	2258	2286	622	1468	3889	4831	3193
Cable Installation		23015	9837	38693	116692	37018	37481	10200	24076	63771	79218	52357
F.O. Xmt/Rcvr		2052	1080	1980	3672	1404	972	612	972	1116	2844	1908
F.O. Line Repeater		2460	972	2400	8196	2880	2832	792	1404	3864	4548	4692
CEV, Power		1610	840	2870	7315	2450	2240	805	1645	3500	5460	3150
T1 & M13 Mux		301498	151186	175372	297261	144711	76459	165436	124606	105971	274740	188966
GRAND TOTAL - FC		352990	173383	258557	545452	224093	156061	187663	175876	239602	443058	301467
\$ per mile (000)		243	279	106	74	96	66	291	116	60	89	91
\$/cct-mi		.434	.988	.259	.092	.308	.300	2.295	.580	.249	.158	.196
\$/circuit		335.81	329.25	442.68	571.91	456.89	647.98	295.88	396.12	673.93	471.54	485.17
Annual Cost (\$000)												
24 fiber FO Cable		8442	3575	14063	42413	13454	13623	3707	8751	23178	28792	19030
24f Ca Splicing		571	242	951	2869	910	922	251	592	1568	1948	1287
Cable Installation		9279	3966	15600	47046	14924	15111	4112	9707	25710	31938	21109
F.O. Xmt/Rcvr		1287	677	1242	2303	881	610	384	610	700	1784	1197
F.O. Line Repeater		1543	610	1505	5141	1806	1776	497	881	2424	2853	2943
CEV, Power		645	337	1150	2932	982	898	323	659	1403	2188	1262
T1 & M13 Mux		189112	94830	110000	186454	90768	47958	103768	78158	66470	172328	118527
GRAND TOTAL - AC		210878	104237	144512	289157	123726	80898	113042	99357	121452	241831	165355
\$ per mile (000)		145	168	59	39	53	34	176	65	30	48	50
\$/cct-mi		.259	.594	.145	.049	.170	.155	1.382	.327	.126	.086	.107
\$/circuit		200.61	197.94	247.42	303.18	252.26	335.89	178.23	223.77	341.61	257.38	266.12

EXHIBIT 6.84: 17 NODE LATA ACCESS NETWORK - 1990 TRAFFIC Page 2 of 2

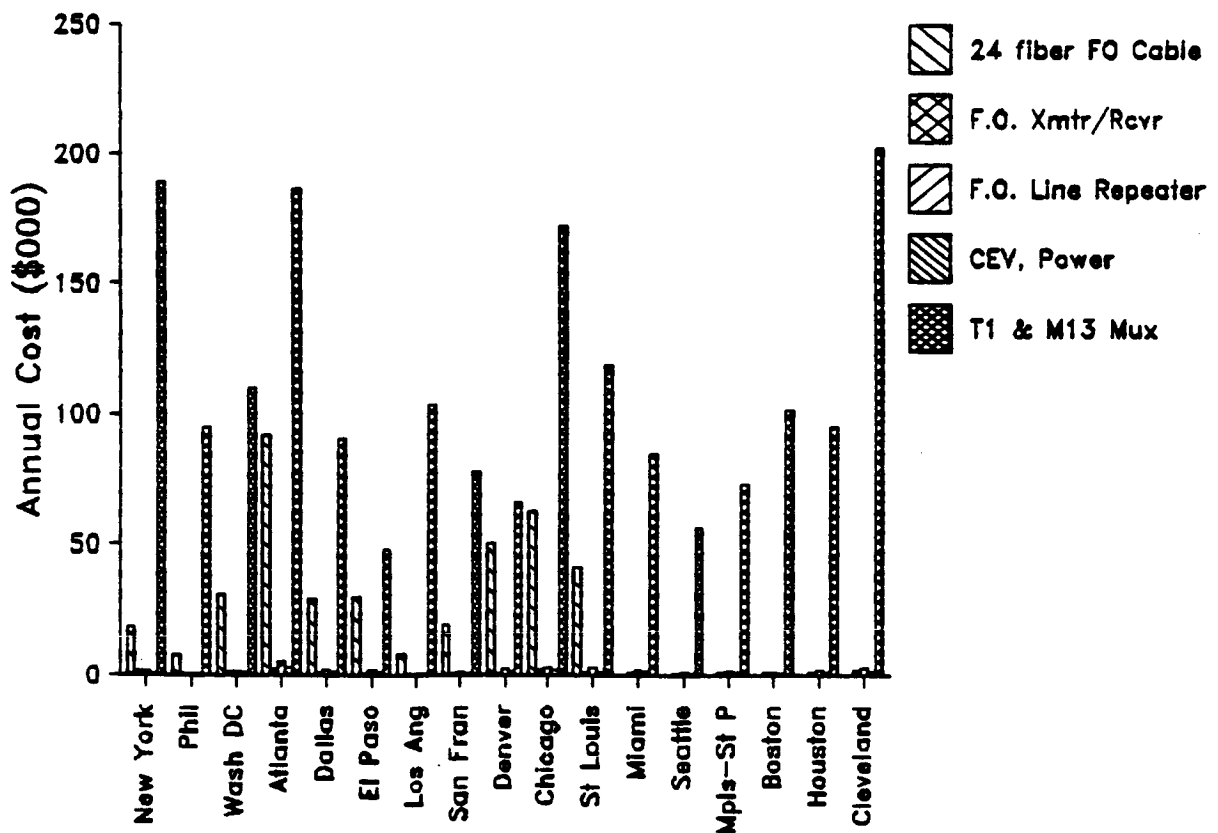
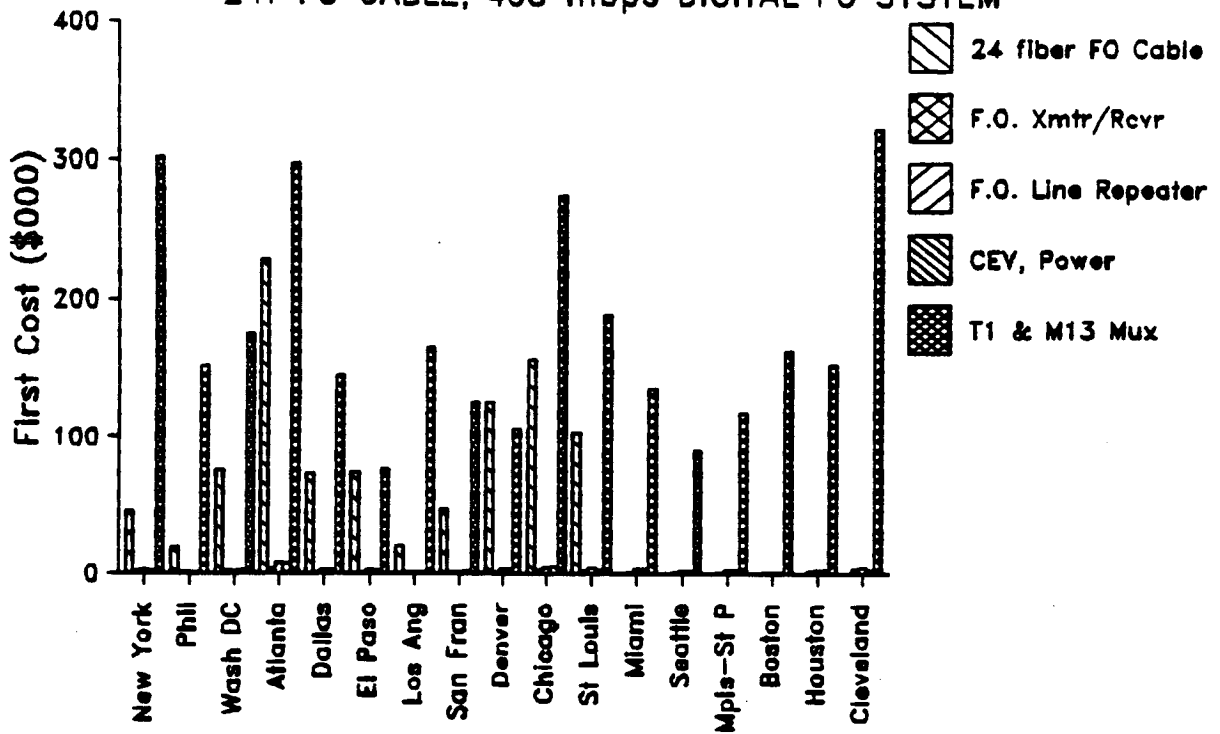
24F F0 CABLE, 405 mbps DIGITAL F0 SYSTEM 50 mi Repeater Spacing

Traffic Factor 1.14
Mileage Factor 1.35
Initial Fill .8

Node City	12 Miami	13 Seattle	14 Mpls-St P	15 Boston	16 Houston	17 Cleveland
Actual Traffic	291978	196618	248808	356301	328551	652401
VF Ccts Req'd	238599	152103	223632	265104	269379	742720
Total VF Channels	298248	190129	279540	331380	336723	928400
Total VF Circuits	456215	307216	388763	556721	513361	1019377
Circuit Miles(000)	1093252	330899	762826	264150	1036875	2630460
First Cost (\$000)						
24 fiber F0 Cable	52344	24853	38968	13169	43973	42213
24f Ca Splicing	3541	1681	2636	891	2975	2856
Cable Installation	58063	27568	43225	12626	48776	44880
F.O. Xmtr/Rcvr	1368	828	1368	1260	1584	3528
F.O. Line Repeater	3540	1836	2760	1272	3168	4920
CEV, Power	3360	1610	2800	1085	3080	3185
T1 & M13 Mux	135264	90244	117376	162514	152432	322717
GRAND TOTAL - FC	257480	148620	209134	192818	255987	424299
\$ per mile (000)	70	85	77	242	83	150
\$/cct-mi	.236	.449	.274	.730	.247	.161
\$/circuit	564.38	483.76	537.95	346.35	498.65	416.23
Annual Cost (\$000)						
24 fiber F0 Cable	21103	10020	15711	5309	17728	17019
24f Ca Splicing	1428	678	1063	359	1199	1151
Cable Installation	23409	11114	17427	5090	19665	18094
F.O. Xmtr/Rcvr	858	519	858	790	994	2213
F.O. Line Repeater	2220	1152	1731	798	1987	3086
CEV, Power	1347	645	1122	435	1234	1276
T1 & M13 Mux	84843	56605	73623	101935	95611	202421
GRAND TOTAL - AC	135208	80733	111534	114717	138418	245260
\$ per mile (000)	37	46	41	144	45	87
\$/cct-mi	.124	.244	.146	.434	.133	.093
\$/circuit	296.37	262.79	286.90	206.06	269.63	240.60

EXHIBIT 6.84A: 17 NODE LATA ACCESS (1990)

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM



24F F0 CABLE, 405 mbps DIGITAL F0 SYSTEM

50 mi Repeater Spacing

Traffic Factor 1.955
 Mileage Factor 1.35
 Initial Fill .8

Node City	1 New York	2 Phil	3 Wash DC	4 Atlanta	5 Dallas	6 El Paso	7 Los Ang	8 San Fran	9 Denver	10 Chicago	11 St Louis
Actual Traffic	1153706	577969	641042	1046770	538315	264335	696127	487312	390210	1031244	681967
VF Ccts Req'd	768775	387551	560262	1105377	426599	302106	174214	273902	328322	769951	638460
Total VF Channels	960969	484438	700328	1381722	533249	377633	217768	342378	410402	962439	798074
Total VF Circuits	1802665	903077	1001628	1635578	841117	413023	1087698	761425	609703	1611318	1065573
Circuit Miles(000)	1396228	300856	1710713	10179037	1246201	893575	140234	520397	1652256	4813295	2637939
First Cost (\$000)											
24 Fiber F0 Cable	21319	9453	35565	111977	36985	40480	11364	21705	57490	76146	51788
24f Ca Splicing	1442	639	2406	7575	2502	2738	769	1468	3889	5151	3503
Cable Installation	23015	9837	38693	116692	37018	37481	10200	24076	63771	79218	52357
F.O. Xmtr/Rcvr	3312	1692	2808	5364	2088	1476	900	1368	1656	4176	2952
F.O. Line Repeater	3924	1524	3360	12120	4272	4320	1176	1920	5712	6672	7272
DEV, Power	1610	840	2870	7315	2450	2240	805	1645	3500	5460	3150
T1 & M13 Mux	516903	259234	300463	509409	247989	130817	283614	213452	181692	470605	323623
GRAND TOTAL - FC	571525	283220	386165	770452	333304	219552	308829	265635	317711	647428	444646
\$ per mile (000)	393	456	158	105	143	93	480	175	79	129	135
\$/cct-mi	.409	.941	.226	.076	.267	.246	2.202	.510	.192	.135	.169
\$/circuit	317.04	313.62	385.54	471.06	396.26	531.57	283.93	348.87	521.09	401.80	417.28
Annual Cost (\$000)											
24 Fiber F0 Cable	8595	3811	14339	45145	14911	16320	4582	8751	23178	30699	20879
24f Ca Splicing	581	258	970	3054	1009	1104	310	592	1568	2077	1412
Cable Installation	9279	3966	15600	47046	14924	15111	4112	9707	25710	31938	21109
F.O. Xmtr/Rcvr	2077	1061	1761	3365	1310	926	565	858	1039	2619	1852
F.O. Line Repeater	2461	956	2108	7602	2680	2710	738	1204	3583	4185	4561
DEV, Power	645	337	1150	2932	982	898	323	659	1403	2188	1262
T1 & M13 Mux	324222	162602	188462	319522	155549	82053	177894	133886	113965	295182	202989
GRAND TOTAL - AC	347861	172991	224389	428665	191364	119122	188523	155657	170445	368889	254065
\$ per mile (000)	239	279	92	58	82	50	293	102	42	74	77
\$/cct-mi	.249	.575	.131	.042	.154	.133	1.344	.299	.103	.077	.096
\$/circuit	192.97	191.56	224.02	262.09	227.51	288.41	173.32	204.43	279.55	228.94	238.43

EXHIBIT 6.85: 17 NODE LATA ACCESS NETWORK - 1995 TRAFFIC Page 2 of 2

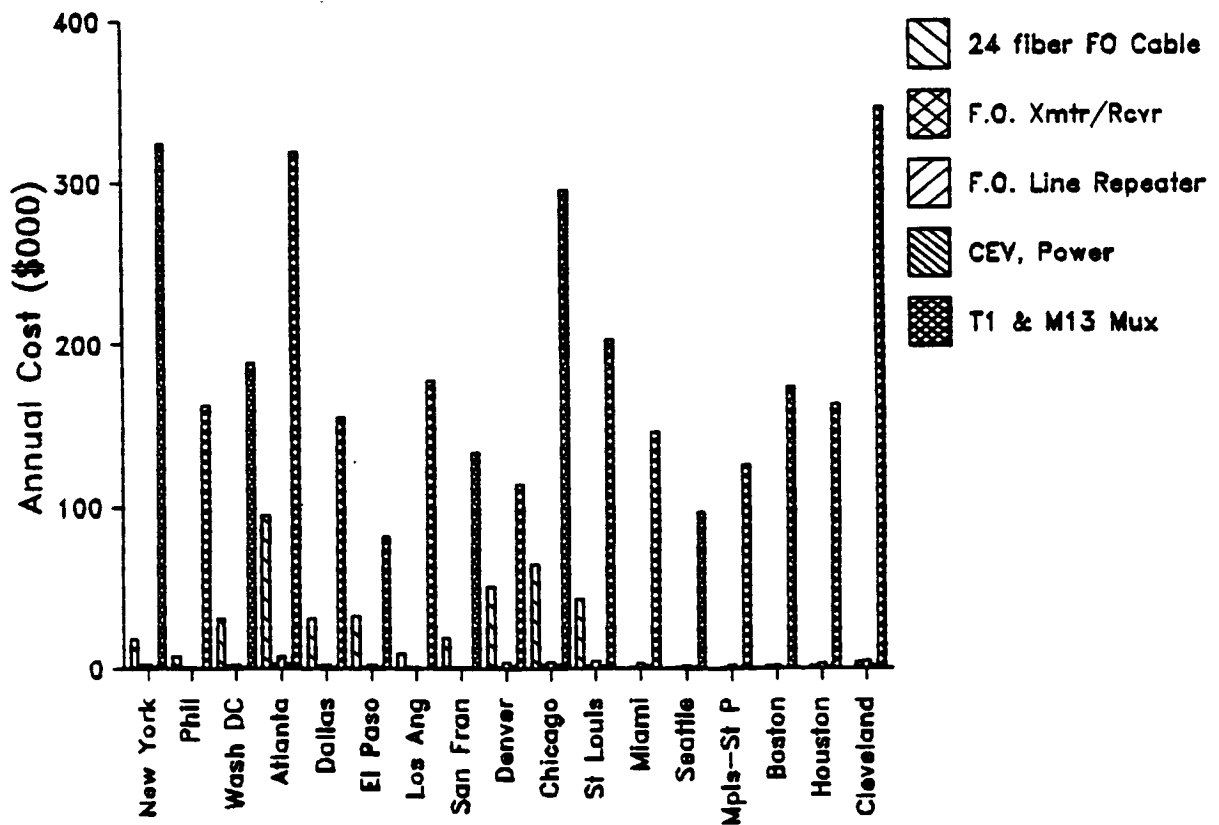
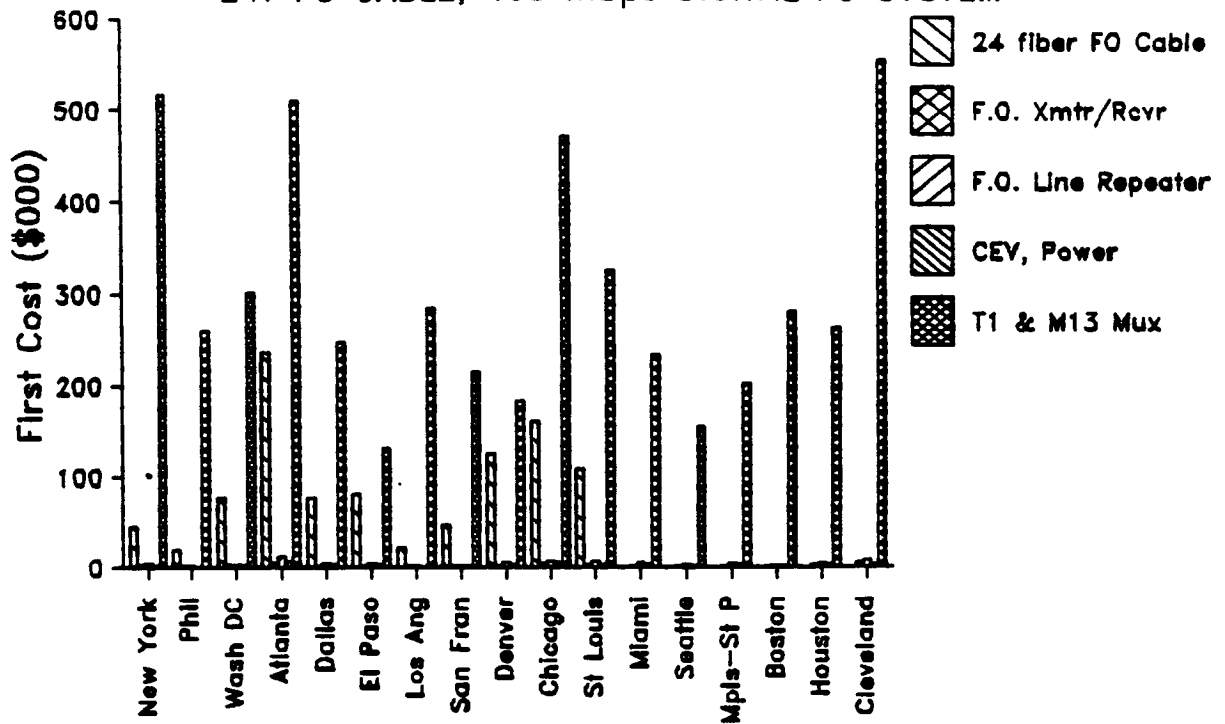
24F FO CABLE, 405 mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing

Traffic Factor 1.955
Mileage Factor 1.35
Initial Fill .8

	Node City	12 Miami	13 Seattle	14 Mpls-St P	15 Boston	16 Houston	17 Cleveland
Actual Traffic		500716	337183	426685	611026	563436	1118811
VF Ccts Req'd		409176	260843	383509	454630	461961	1273700
Total VF Channels		511470	326054	479386	568287	577451	1592125
Total VF Circuits		782369	526849	666695	954728	880369	1748143
Circuit Miles(000)		1874831	567462	1308180	452994	1778150	4511008
First Cost (\$000)							
24 fiber FO Cable		56165	27672	38968	13169	43973	52982
24f Ca Splicing		3799	1872	2636	891	2975	3584
Cable Installation		58063	27568	43225	12626	48776	44880
F.O. Xmtr/Rcvr		1980	1224	1980	2052	2340	5688
F.O. Line Repeater		5076	2628	3996	2088	4608	7956
CEV, Power		3360	1610	2800	1085	3080	3185
T1 & M13 Mux		231927	154610	201065	278392	261138	553133
GRAND TOTAL - FC		360370	217184	294670	310303	366889	671408
\$ per mile (000)		98	125	108	389	119	237
\$/cct-mi		.192	.383	.225	.685	.206	.149
\$/circuit		460.61	412.23	441.99	325.02	416.74	384.07
Annual Cost (\$000)							
24 fiber FO Cable		22644	11156	15711	5309	17728	21360
24f Ca Splicing		1532	755	1063	359	1199	1445
Cable Installation		23409	11114	17427	5090	19665	18094
F.O. Xmtr/Rcvr		1242	768	1242	1287	1468	3568
F.O. Line Repeater		3184	1648	2506	1310	2890	4990
CEV, Power		1347	645	1122	435	1234	1276
T1 & M13 Mux		145474	96978	126116	174618	163796	346947
GRAND TOTAL - AC		198830	123064	165187	188409	207981	397681
\$ per mile (000)		54	71	61	236	68	140
\$/cct-mi		.106	.217	.126	.416	.117	.088
\$/circuit		254.14	233.59	247.77	197.34	236.24	227.49

EXHIBIT 6.85A: 17 NODE LATA ACCESS (1995)

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM



24F FO CABLE, 405 Mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing

Traffic Factor 2.5415
Mileage Factor 1.35
Initial Fill .8

Node	1	2	3	4	5	6	7	8	9	10	11
City	New York	Phil	Wash DC	Atlanta	Dallas	El Paso	Los Ang	San Fran	Denver	Chicago	St Louis
Actual Traffic	1499817	751360	833355	1360801	699809	343635	904965	633506	507273	1340617	886557
VF Ccts Req'd	999408	503816	728341	1436990	554578	392738	226478	356073	426818	1000937	829997
Total VF Channels	1249260	629770	910426	1796238	693223	490923	283098	445091	533523	1251171	1097497
Total VF Circuits	2343464	1173999	1302117	2126251	1093452	536930	1414008	989853	792614	2094714	1385245
Circuit Miles(000)	1815097	391113	2223926	13232748	1620061	1161648	182305	676517	2147932	6257284	3429321
First Cost (\$000)											
24 fiber FO Cable	30854	13271	38375	119050	42598	40480	11364	21705	64619	76146	61246
24f Ca Splicing	2087	898	2596	8053	2882	2738	769	1468	4371	5151	4143
Cable Installation	23015	9837	38693	116692	37018	37481	10200	24076	63771	79218	52357
F.O. Xntr/Rcvr	4356	2196	3456	6624	2592	1800	1116	1692	2088	5040	3672
F.O. Line Repeater	5124	1980	4068	15012	5280	5280	1464	2364	7248	7956	9084
CEV, Power	1610	840	2870	7315	2450	2240	805	1645	3500	5460	3150
T1 & M13 Mux	671919	336941	390560	661814	322371	170100	368704	277451	236111	611551	420746
GRAND TOTAL - FC	738965	365963	480618	934560	415190	260120	394422	330401	381708	790522	554398
\$ per mile (000)	509	589	197	127	178	110	612	217	95	158	168
\$/cct-mi	.407	.936	.216	.071	.256	.224	2.164	.488	.178	.126	.162
\$/circuit	315.33	311.72	369.11	439.53	379.71	484.46	278.94	333.79	481.58	377.39	400.22
Annual Cost (\$000)											
24 fiber FO Cable	12439	5350	15472	47996	17174	16320	4582	8751	26052	30699	24692
24f Ca Splicing	841	362	1047	3247	1162	1104	310	592	1762	2077	1670
Cable Installation	9279	3966	15600	47046	14924	15111	4112	9707	25710	31938	21109
F.O. Xntr/Rcvr	2732	1377	2168	4155	1626	1129	700	1061	1310	3161	2303
F.O. Line Repeater	3214	1242	2552	9416	3312	3312	918	1483	4546	4990	5698
CEV, Power	645	337	1150	2932	982	898	323	659	1403	2188	1262
T1 & M13 Mux	421455	211343	244975	415116	202204	106693	231266	174028	148098	383589	263908
GRAND TOTAL - AC	450605	223977	282962	529908	241383	144567	242211	196281	208881	458643	320643
\$ per mile (000)	310	361	116	72	103	61	376	129	52	92	97
\$/cct-mi	.248	.573	.127	.040	.149	.124	1.329	.290	.097	.073	.094
\$/circuit	192.28	190.78	217.31	249.22	220.75	269.25	171.29	198.29	263.53	218.95	231.47

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing

Traffic Factor 2.5415
 Mileage Factor 1.35
 Initial Fill .8

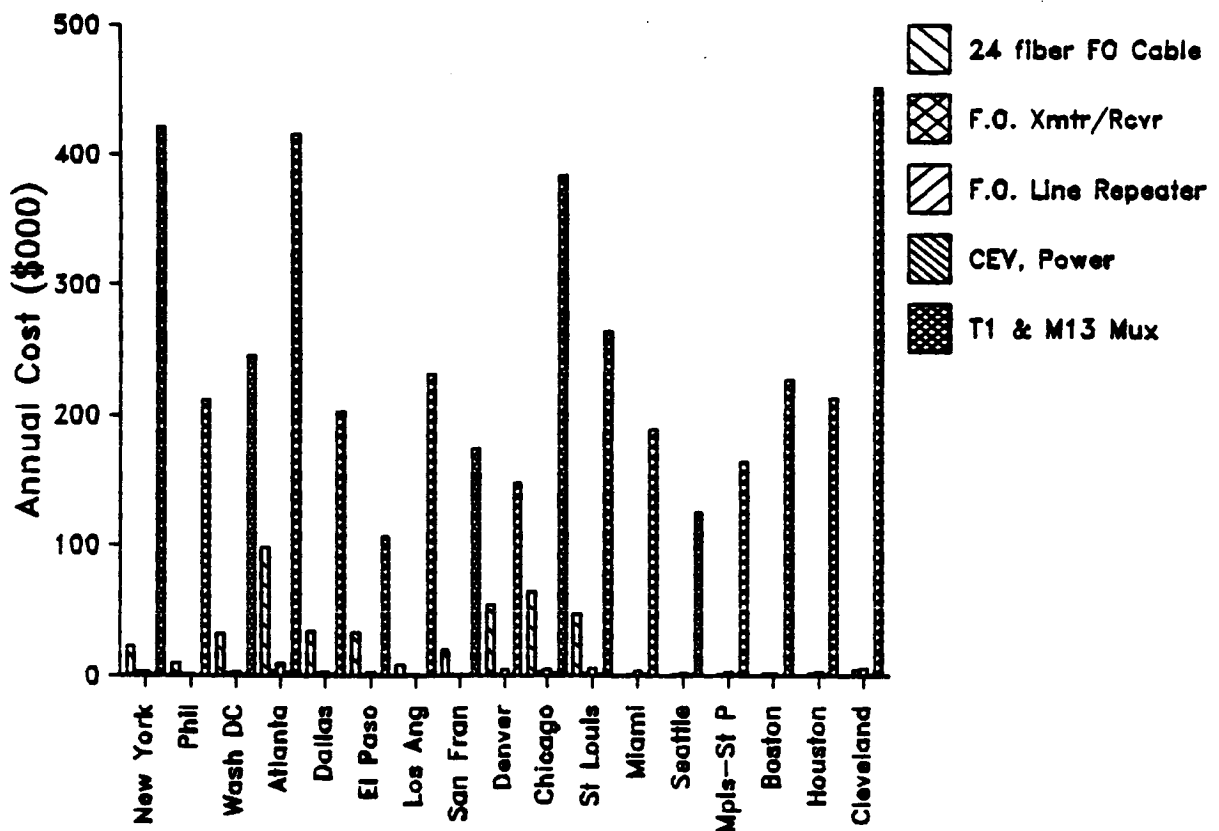
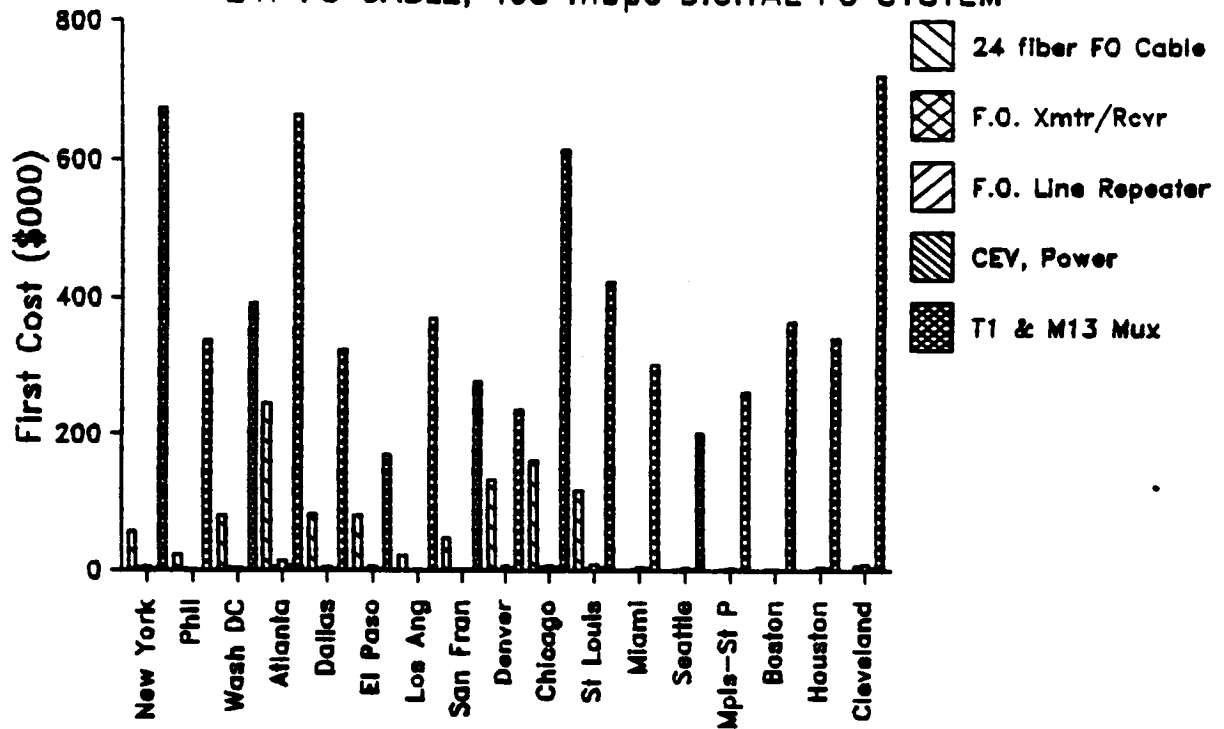
Node City	12 Miami	13 Seattle	14 Mpls-St P	15 Boston	16 Houston	17 Cleveland
Actual Traffic	650931	438338	554690	794333	732467	1454455
VF Ccts Req'd	531929	339096	498562	591019	600549	1655809
Total VF Channels	664911	423870	623202	738773	750686	2069762
Total VF Circuits	1017080	684904	866703	1241146	1144480	2272585
Circuit Miles(000)	2437280	737701	1700634	588892	2311595	5864310

First Cost (\$000)						
24 fiber FO Cable	56165	27672	38968	14955	47532	61222
24f Ca Splicing	3799	1872	2636	1012	3215	4141
Cable Installation	58063	27568	43225	12626	48776	44880
F.O. Xmtr/Rcvr	2484	1584	2340	2556	2772	7200
F.O. Line Repeater	6348	3420	4704	2616	5472	9948
CEV, Power	3360	1610	2800	1085	3080	3185
T1 & M13 Mux	301397	201100	261304	361957	339328	718991
GRAND TOTAL - FC	431616	264826	355977	396807	450176	849567
\$ per mile (000)	118	152	130	498	146	300
\$/cct-mi	.177	.359	.209	.674	.195	.145
\$/circuit	424.37	386.66	410.73	319.71	393.35	373.83

Annual Cost (\$000)						
24 fiber FO Cable	22644	11156	15711	6030	19163	24682
24f Ca Splicing	1532	755	1063	408	1296	1670
Cable Installation	23409	11114	17427	5090	19665	18094
F.O. Xmtr/Rcvr	1558	994	1468	1603	1739	4516
F.O. Line Repeater	3982	2145	2951	1641	3432	6240
CEV, Power	1347	645	1122	435	1234	1276
T1 & M13 Mux	189048	126138	163900	227034	212840	450980
GRAND TOTAL - AC	243519	152947	203641	242241	259370	507458
\$ per mile (000)	66	88	75	304	84	179
\$/cct-mi	.100	.207	.120	.411	.112	.087
\$/circuit	239.43	223.31	234.96	195.17	226.63	223.30

EXHIBIT 6.86A:17 NODE LATA ACCESS(1995+30)

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM



24f FO CABLE, 405 mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing

Traffic Factor 1.3685
 Mileage Factor 1.35
 Initial Fill .8

Node	1	2	3	4	5	6	7	8	9	10	11
City	New York	Phil	Wash DC	Atlanta	Dallas	El Paso	Los Ang	San Fran	Denver	Chicago	St Louis
Actual Traffic	807594	404578	448730	732739	376820	185034	487289	341118	273147	721871	477377
VF Ccts Req'd	538143	271285	392184	773764	298619	211474	121950	191731	229825	538966	446922
Total VF Channels	672678	339107	490230	967205	373274	264343	152437	239664	287282	673707	558652
Total VF Circuits	1261865	632154	701140	1144905	588782	289116	761389	532998	426792	1127923	745901
Circuit Miles(000)	977360	210599	1197499	7125326	872341	625503	98164	364278	1156579	3369307	1846558
First Cost (\$000)											
24 fiber FO Cable	21129	8868	35565	105200	39372	33790	9196	21705	57490	71416	47201
24f Ca Splicing	1429	600	2406	7116	2258	2286	622	1468	3889	4831	3193
Cable Installation	23015	9837	38693	116692	37018	37481	10200	24076	63771	79218	52357
F.O. Xntr/Rcvr	2448	1260	2268	4212	1584	1116	684	1080	1296	3204	2196
F.O. Line Repeater	2940	1128	2724	9492	3228	3264	900	1596	4452	5088	5436
CEV, Power	1610	840	2870	7315	2450	2240	805	1645	3500	5460	3150
T1 & M13 Mux	361945	181508	210512	356748	173742	91697	198577	149512	127273	329689	226728
GRAND TOTAL - FC	414515	204042	295038	606775	253652	171874	220985	201083	261672	498906	340261
\$ per mile (000)	285	329	121	82	109	73	343	132	65	100	103
\$/cct-mi	.424	.969	.246	.085	.291	.275	2.251	.552	.226	.148	.184
\$/circuit	328.49	322.77	420.80	529.98	430.81	594.48	290.24	377.27	613.11	442.32	456.17
Annual Cost (\$000)											
24 fiber FO Cable	8518	3575	14339	42413	13454	13623	3707	8751	23178	28792	19030
24f Ca Splicing	576	242	970	2869	910	922	251	592	1568	1948	1287
Cable Installation	9279	3966	15600	47046	14924	15111	4112	9707	25710	31938	21109
F.O. Xntr/Rcvr	1535	790	1423	2642	994	700	429	677	813	2010	1377
F.O. Line Repeater	1844	708	1709	5954	2025	2047	565	1001	2792	3191	3410
CEV, Power	645	337	1150	2932	982	898	323	659	1403	2188	1262
T1 & M13 Mux	227026	113849	132041	223766	108978	57516	124556	93780	79831	206794	142213
GRAND TOTAL - AC	249424	123467	167231	327621	142267	90816	133942	115167	135295	276861	189688
\$ per mile (000)	172	199	68	44	61	38	208	76	34	55	57
\$/cct-mi	.255	.586	.140	.046	.163	.145	1.364	.316	.117	.082	.103
\$/circuit	197.66	195.31	238.51	286.16	241.63	314.12	175.92	216.07	317.00	245.46	254.31

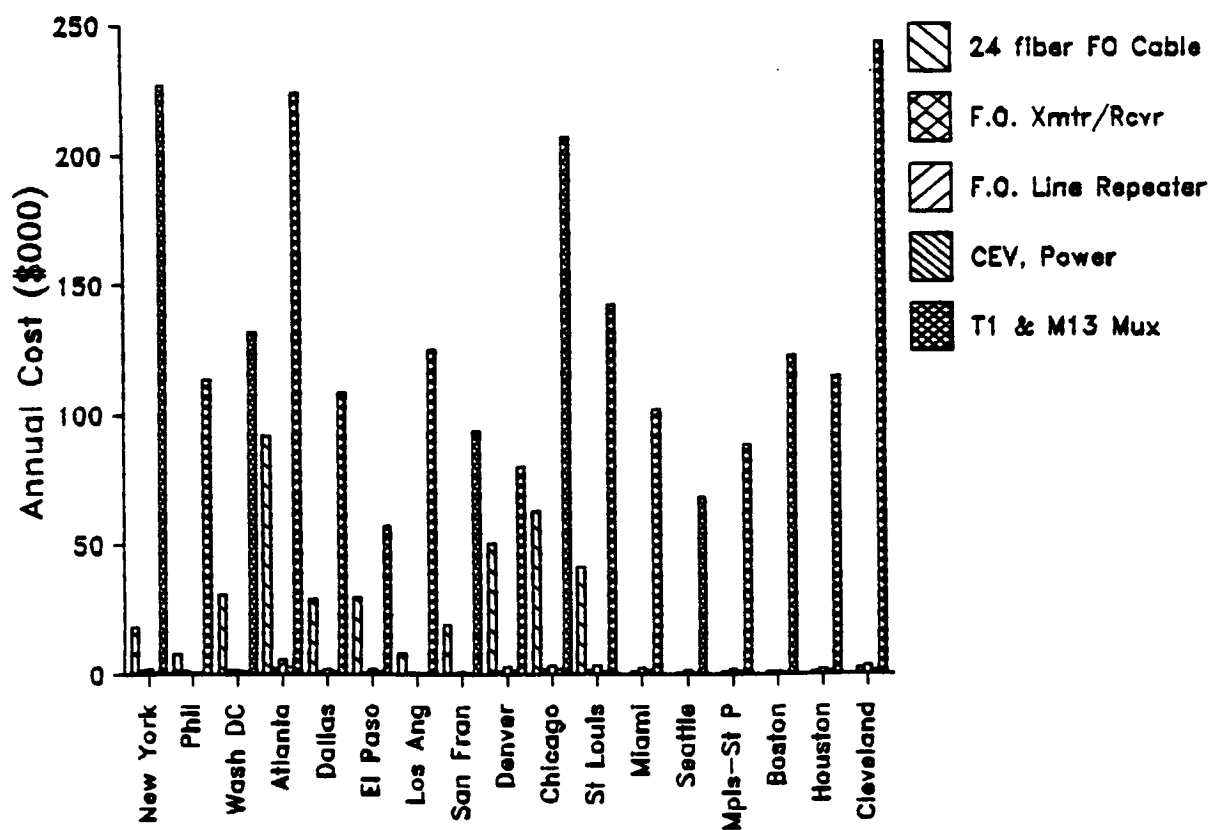
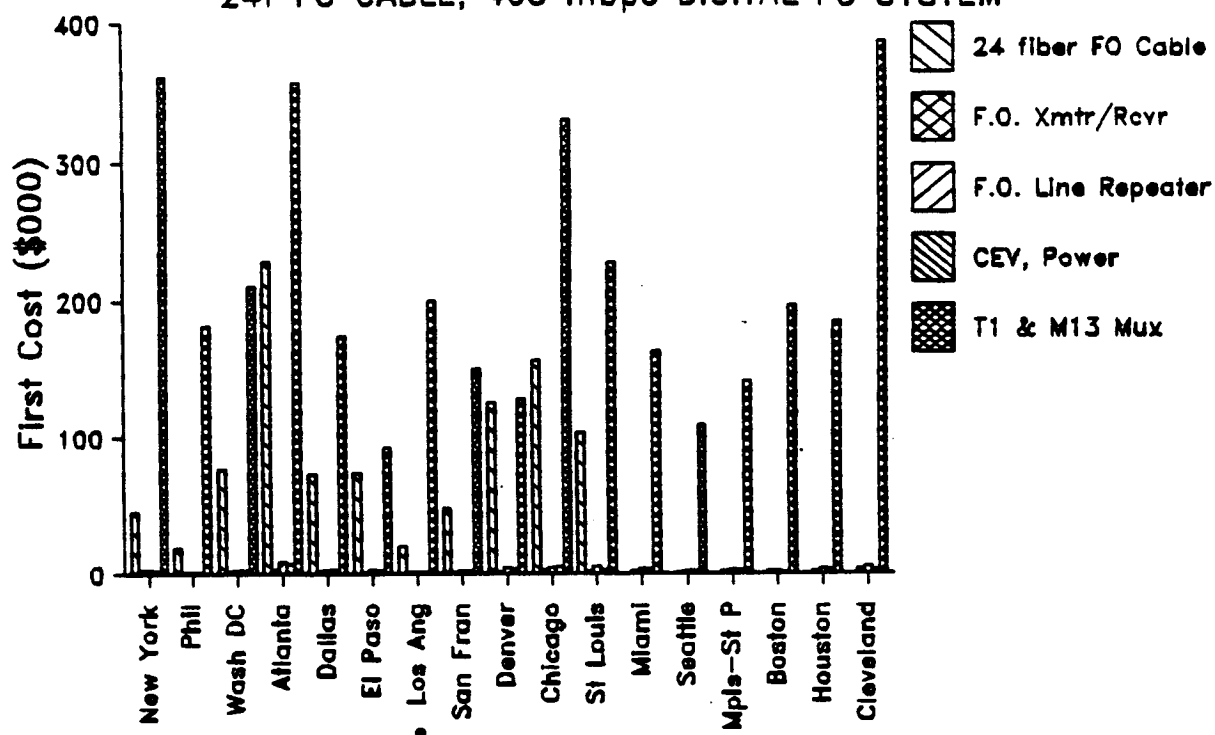
24F FO CABLE, 405 mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing

Traffic Factor 1.3685
 Mileage Factor 1.35
 Initial Fill .8

	Node City	12 Miami	13 Seattle	14 Mpls-St P	15 Boston	16 Houston	17 Cleveland
Actual Traffic		350501	236028	298679	427718	394405	783168
VF Ccts Req'd		286423	182590	268456	318241	323372	891590
Total VF Channels		358029	228238	335571	397801	404216	1114487
Total VF Circuits		547658	368794	466686	668309	616258	1223700
Circuit Miles(000)		1312381	397223	915726	317095	1244705	3157705
First Cost (\$000)							
24 fiber FO Cable		52344	24853	38968	13169	43973	46178
24f Ca Splicing		3541	1681	2636	891	2975	3124
Cable Installation		58063	27568	43225	12626	48776	44880
F.O. Xntr/Rcvr		1548	936	1512	1548	1764	4176
F.O. Line Repeater		4008	2052	3036	1572	3492	5808
CEV, Power		3360	1610	2800	1085	3080	3185
T1 & M13 Mux		162462	108371	140832	194990	182942	387380
GRAND TOTAL - FC		285326	167071	233009	225861	287001	494730
\$ per mile (000)		78	96	85	283	93	175
\$/cct-mi		.217	.421	.254	.712	.231	.157
\$/circuit		520.99	453.02	499.28	337.99	465.72	404.29
Annual Cost (\$000)							
24 fiber FO Cable		21103	10020	15711	5309	17728	18617
24f Ca Splicing		1428	678	1063	359	1199	1259
Cable Installation		23409	11114	17427	5090	19665	18094
F.O. Xntr/Rcvr		971	587	948	971	1106	2619
F.O. Line Repeater		2514	1287	1904	986	2190	3643
CEV, Power		1347	645	1122	435	1234	1276
T1 & M13 Mux		101903	67975	88335	122305	114748	242980
GRAND TOTAL - AC		152674	92306	126510	135456	157872	288489
\$ per mile (000)		42	53	46	170	51	102
\$/cct-mi		.116	.232	.138	.427	.127	.091
\$/circuit		278.78	250.29	271.08	202.68	256.18	235.75

EXHIBIT 6.87A:17 NODE LATA ACCESS(1995-30

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM



24F FO CABLE, 405 mbps DIGITAL FO SYSTEM

50 mi Repeater Spacing

Traffic Factor 3.2775
 Mileage Factor 1.35
 Initial Fill .8

	Node	1	2	3	4	5	6	7	8	9	10	11
	City	New York	Phil	Wash DC	Atlanta	Dallas	El Paso	Los Ang	San Fran	Denver	Chicago	St Louis
Actual Traffic		1934153	968948	1074688	1754879	902469	443150	1167036	816964	654176	1728850	1143298
VF Ccts Req'd		1288829	649717	939263	1853133	715180	506472	292065	459189	550422	1290801	1070359
Total VF Channels		1611037	812147	1174079	2316416	893976	633091	365081	573986	688027	1613501	1337948
Total VF Circuits		3022115	1513981	1679200	2741998	1410108	692422	1823494	1276507	1022150	2701328	1786402
Circuit Miles(000)		2340736	504376	2867959	17064856	2089219	1498053	235099	872431	2769958	8069348	4422428
First Cost (\$000)												
24 fiber FO Cable		33577	16650	40901	124936	47097	44871	11364	23131	64619	80954	79415
24f Ca Splicing		2271	1126	2767	8452	3186	3035	769	1565	4371	5476	5372
Cable Installation		23015	9837	38693	116692	37018	37481	10200	24076	63771	79218	52357
F.O. Xmtr/Rcvr		5436	2808	4428	8244	3276	2304	1332	2124	2520	6120	4644
F.O. Line Repeater		6384	2532	5232	18612	6732	6732	1752	3036	8688	9612	11556
CEV, Power		1610	840	2870	7315	2450	2240	805	1645	3500	5460	3150
T1 & M13 Mux		866392	434517	503532	853394	415596	219286	475381	357814	304411	788530	542491
GRAND TOTAL - FC		938685	468311	598423	1137645	515355	315950	501603	413391	451880	975370	698985
\$ per mile (000)		646	754	245	154	221	134	779	272	112	195	211
\$/cct-mi		.401	.928	.209	.067	.247	.211	2.134	.474	.163	.121	.158
\$/circuit		310.61	309.32	356.37	414.90	365.47	456.30	275.08	323.85	442.09	361.07	391.28
Annual Cost (\$000)												
24 fiber FO Cable		13537	6713	16490	50370	18988	18091	4582	9326	26052	32638	32017
24f Ca Splicing		916	454	1115	3407	1284	1224	310	631	1762	2208	2166
Cable Installation		9279	3966	15600	47046	14924	15111	4112	9707	25710	31938	21109
F.O. Xmtr/Rcvr		3410	1761	2777	5171	2055	1445	835	1332	1581	3839	2913
F.O. Line Repeater		4004	1588	3282	11674	4223	4223	1099	1904	5449	6029	7248
CEV, Power		645	337	1150	2932	982	898	323	659	1403	2188	1262
T1 & M13 Mux		543436	272547	315833	535283	260679	137545	298178	224435	190939	494597	340272
GRAND TOTAL - AC		575226	287366	356249	655882	303134	178536	309439	247994	252896	573436	406987
\$ per mile (000)		396	463	146	89	130	75	481	163	63	115	123
\$/cct-mi		.246	.570	.124	.038	.145	.119	1.316	.284	.091	.071	.092
\$/circuit		190.34	189.81	212.15	239.20	214.97	257.84	169.70	194.28	247.42	212.28	227.83

EXHIBIT 6.88: 17 NODE LATA ACCESS NETWORK - 2000 TRAFFIC

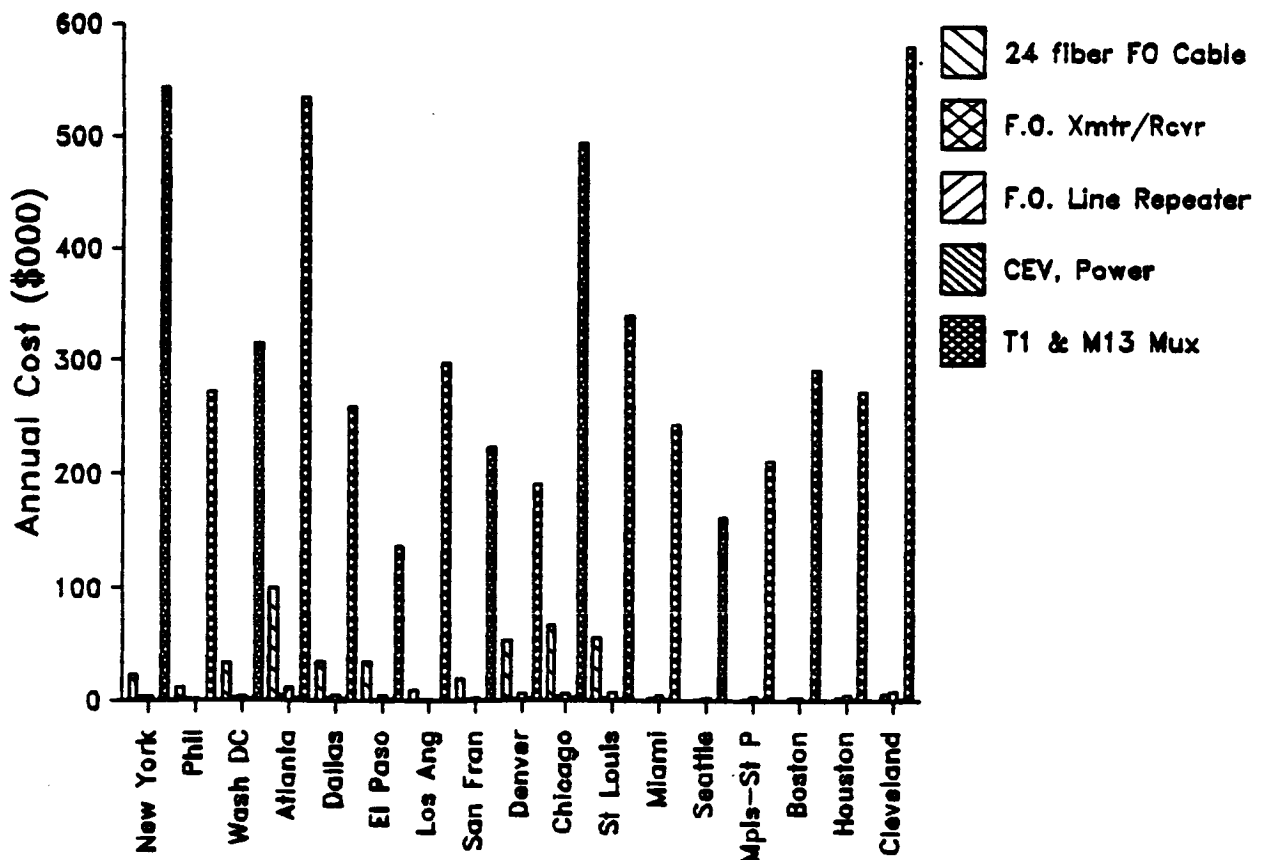
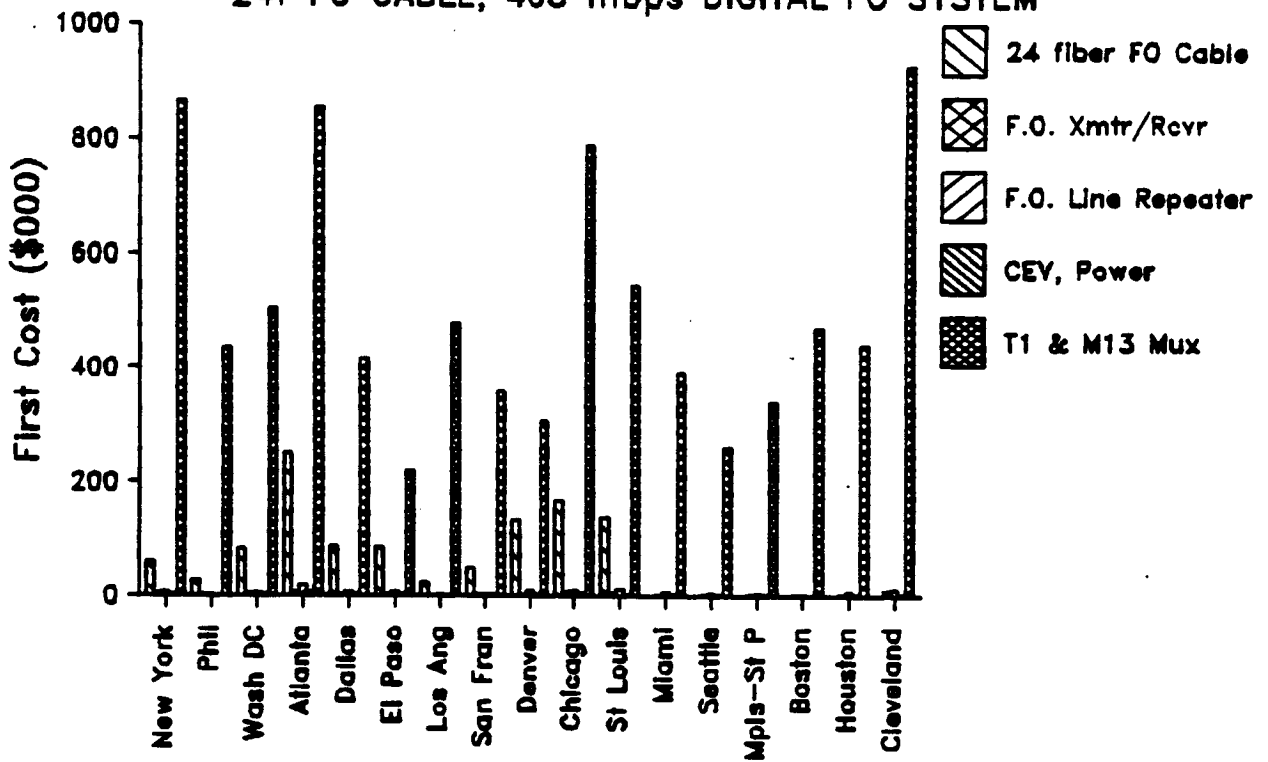
24f FO CABLE, 405 mbps DIGITAL FO SYSTEM 50 mi Repeater Spacing

Traffic Factor 3.2775
 Mileage Factor 1.35
 Initial Fill .8

Node City	12 Miami	13 Seattle	14 Mpls-St P	15 Boston	16 Houston	17 Cleveland
Actual Traffic	839436	565278	715324	1024367	944584	1875654
VF Ccts Req'd	685971	437296	642942	762173	774463	2135320
Total VF Channels	857464	546620	803677	952717	968079	2669150
Total VF Circuits	1311619	883247	1117694	1600573	1475913	2930710
Circuit Miles(000)	3143098	951333	2193125	759430	2981016	7562572
First Cost (\$000)						
24 fiber FO Cable	63734	27672	43456	19828	51662	71246
24f Ca Splicing	4311	1872	2940	1341	3495	4820
Cable Installation	58063	27568	43225	12626	48776	44880
F.O. Xmtr/Rcvr	3132	1944	2916	3240	3564	9072
F.O. Line Repeater	7896	4164	5856	3300	7068	12444
CEV, Power	3360	1610	2800	1085	3080	3185
T1 & M13 Mux	388688	259306	336978	466763	437541	926969
GRAND TOTAL - FC	529184	324135	438170	508184	555186	1072615
\$ per mile (000)	144	186	161	638	180	379
\$/cct-mi	.168	.341	.200	.669	.186	.142
\$/circuit	403.46	366.98	392.03	317.50	376.16	365.99
Annual Cost (\$000)						
24 fiber FO Cable	25695	11156	17520	7994	20828	28724
24f Ca Splicing	1738	755	1185	541	1409	1943
Cable Installation	23409	11114	17427	5090	19665	18094
F.O. Xmtr/Rcvr	1965	1219	1829	2032	2235	5690
F.O. Line Repeater	4953	2612	3673	2070	4433	7805
CEV, Power	1347	645	1122	435	1234	1276
T1 & M13 Mux	243801	162647	211366	292772	274443	581432
GRAND TOTAL - AC	302907	190149	254122	310934	324248	644965
\$ per mile (000)	83	109	93	390	105	228
\$/cct-mi	.096	.200	.116	.409	.109	.085
\$/circuit	230.94	215.28	227.36	194.26	219.69	220.07

EXHIBIT 6.88A: 17 NODE LATA ACCESS (2000)

24f FO CABLE, 405 mbps DIGITAL FO SYSTEM



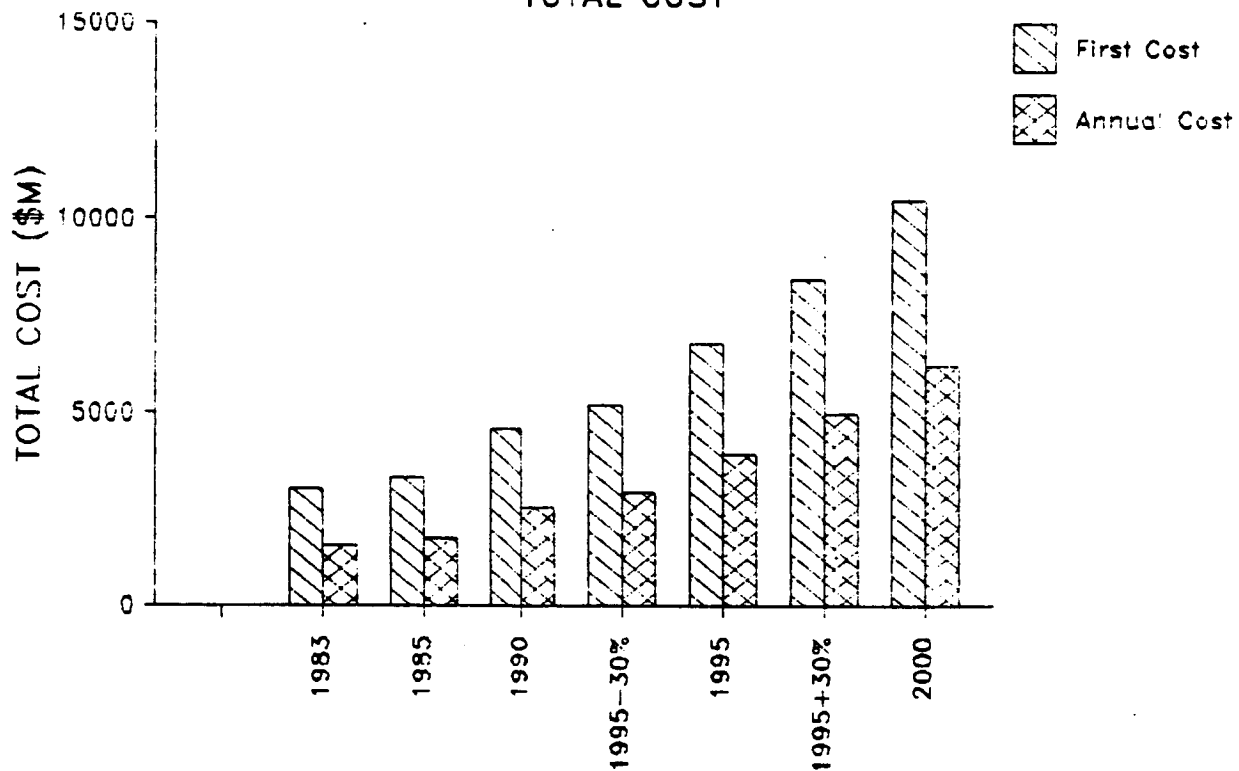
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EXHIBIT 6.89: DATA ACCESS LINK SUMMARY - 17-NODE NETWORK

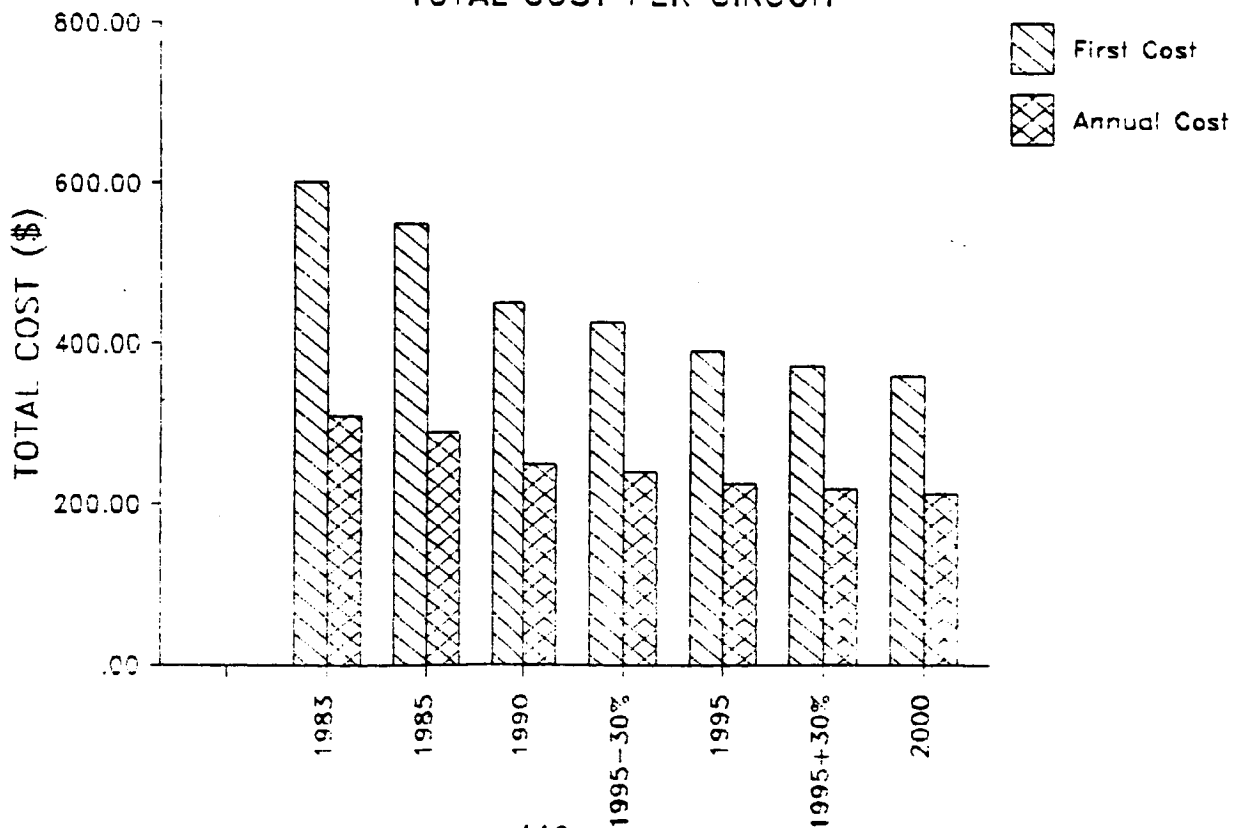
	1983	1985	1990	1995-30%	1995	1995+30%	2000
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
M Factor	1.30						
Init Fall	.8						
FIRST COST (\$000)							
New York	195419	225757	352990	414515	571525	738965	938680
Phil	94229	109230	173380	204042	283220	365963	468311
Wash, DC	167738	185905	258557	295038	386165	480618	598423
Atlanta	395447	426117	545452	606775	770452	934560	1137645
Dallas	150505	164976	224093	253652	333304	415190	515355
El Paso	118194	126177	156061	171874	219552	260120	315950
Los Ang	103003	120319	187663	220985	308929	394422	501603
San Fran	112531	124788	175876	201083	265635	330401	413391
Denver	188900	200324	239602	261672	317711	381708	451860
Chicago	303053	330794	443058	498906	647428	790522	975370
St Louis	205472	224942	301467	340261	444646	554398	698985
Miami	190433	204282	257480	285326	360370	431616	529184
Seattle	103158	112271	148620	167071	217184	264826	324135
Mpls-St P	149919	161577	209134	233009	294670	355977	438170
Boston	107327	123651	192818	225881	310303	396807	508184
Houston	178997	194233	255987	287001	366889	450176	555184
Cleveland	253144	289387	424299	494730	671408	849567	1072615
TOTAL DC	3017933	3324761	4546538	5161822	6769289	8395837	10443073
\$/000/mi	66	72	99	112	147	183	227
\$/cct-mi	.020	.018	.015	.014	.013	.013	.012
\$/cct	601.24	549.55	450.90	426.44	391.47	373.49	360.24
ANNUAL COST (\$000)							
New York	111808	130808	210878	249424	347861	450605	575226
Phil	54477	63886	104237	123467	172991	223977	287366
Wash, DC	87150	98382	144512	167231	224389	282962	356249
Atlanta	193903	213140	289157	327621	428665	529908	655882
Dallas	77204	86282	123726	142267	191364	241383	303134
El Paso	56774	61781	80898	90816	119122	144567	178576
Los Ang	60213	70696	113042	133942	188523	242211	309439
San Fran	59260	67074	99357	115167	155657	196281	247994
Denver	89050	96173	121452	135295	170445	208881	252896
Chicago	153220	170630	241831	276861	368889	458643	573436
St Louis	104619	116632	165355	189686	254065	320643	406987
Miami	92374	101261	135208	152674	198830	243519	302907
Seattle	51940	57656	80733	92306	123064	152947	190149
Mpls-St P	73903	81277	111534	126510	165187	203641	254122
Boston	60986	71206	114717	135456	188409	242241	310934
Houston	87838	99192	138418	157872	207981	259370	324248
Cleveland	137448	159230	245260	288489	397681	507458	644965
TOTAL AC	1554212	1745510	2520314	2905087	3903120	4909235	6174470
\$/000/mi	34	38	55	63	85	107	134
\$/cct-mi	.010	.010	.008	.008	.008	.007	.007
\$/cct	309.63	288.52	249.95	240.00	225.72	218.39	212.99

EXHIBIT 6.89A: 17 NODE LATA ACCESS

TOTAL COST



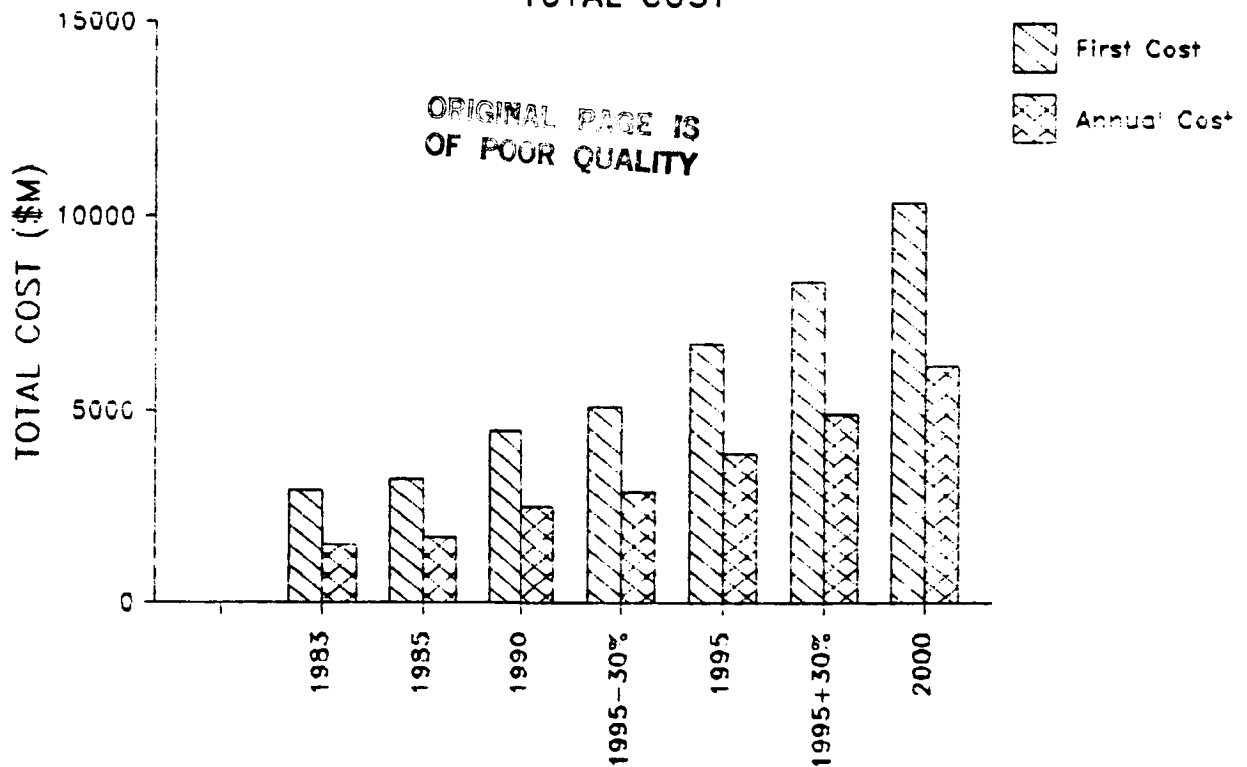
TOTAL COST PER CIRCUIT



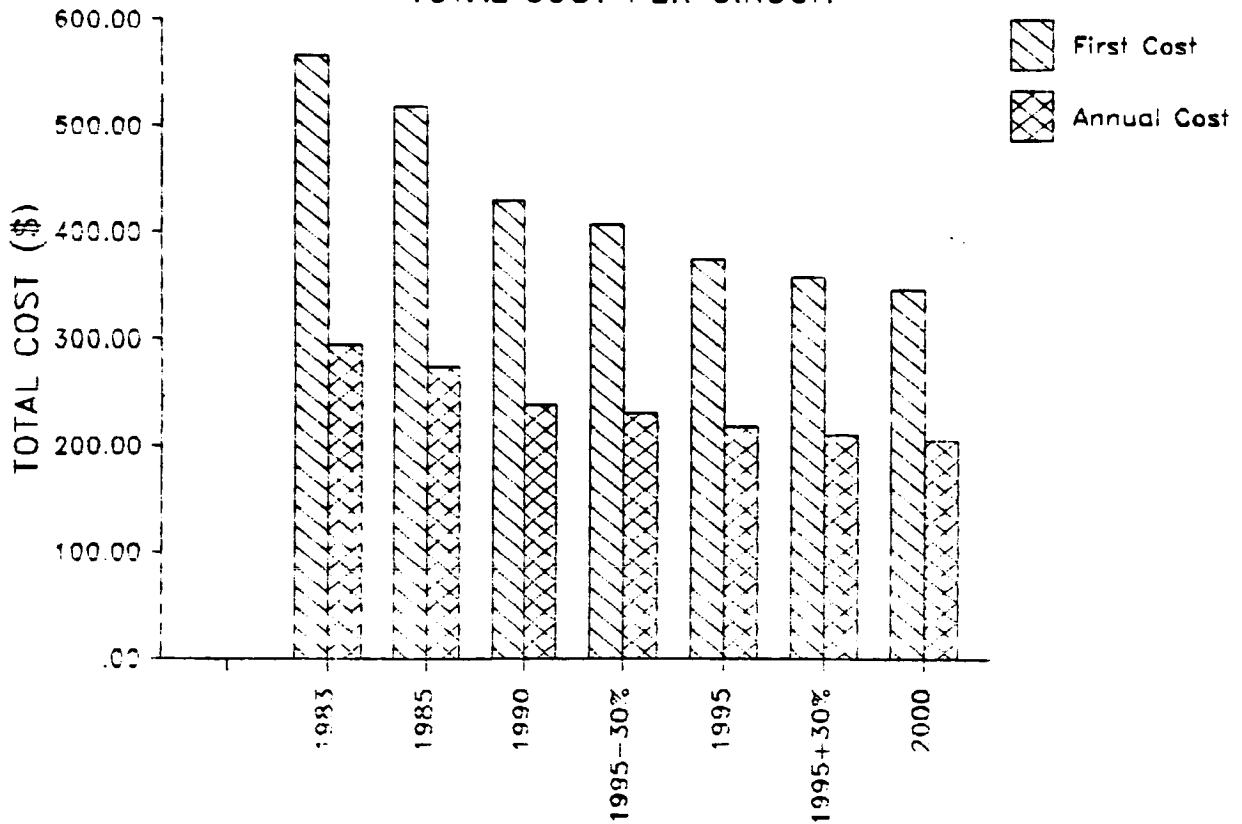
	1983	1985	1990	1995-30%	1995	1995+30%	2000
Tx Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mx Factor	1.75						
Int. Fcst	.0						
FIXED COST (\$000)							
New York	149031	176505	294627	350766	494328	639921	822820
Phil	93507	108345	171950	202262	280958	362815	460467
Wash, DC	167036	184320	257182	292558	383915	474381	594184
Atlanta	437234	471231	604413	672448	853965	1040455	1273169
Dallas	91353	99460	131241	147531	188769	230759	282763
Phoenix	46603	52133	73981	84999	113274	141431	183711
Los Ang	107715	120460	187887	221302	309205	394922	502291
San Fran	112348	124811	175912	201124	265699	330524	413491
Denver	224620	239144	292600	321574	404376	479200	584424
Chicago	314791	344073	466793	527278	687956	843305	1047229
St Louis	92410	101594	138179	156703	204371	258394	318353
Miami	87993	96410	129095	145877	188853	231689	289980
Seattle	103046	112117	148402	166713	216807	264238	323343
Mpls-St P	106717	117033	159571	180569	234686	288936	361601
Boston	79917	91840	141260	165097	226205	287305	367360
Buffalo	50535	57471	87147	101350	137719	177097	224242
Cleveland	110742	125950	193204	224786	309025	394924	506204
Detroit	89978	101929	152246	176692	242650	305590	389411
Pittsburg	26467	30875	48081	56712	78815	100788	128519
Tampa	64404	69742	89004	99197	125051	150943	183343
Houston	224151	238397	294249	323171	398221	473003	571213
Orla City	76756	83951	113366	128075	166163	210238	259790
Kans City	74143	81946	113894	129679	169792	210241	264521
TOTAL FC	2927577	3229837	4464283	5076421	6680864	8291100	10354429
\$000/mi	68	75	104	118	156	193	241
\$/cct-mi	.023	.021	.018	.017	.015	.015	.014
\$/cct	566.45	518.49	430.00	407.31	375.23	358.21	346.90
ANNUAL COST (\$000)							
New York	89918	107162	181313	216480	306482	397311	511380
Phil	54074	63331	103338	122350	171509	222003	283254
Wash, DC	86710	97551	143650	165839	222978	279722	353591
Atlanta	214664	235988	320809	363483	475717	590014	733021
Dallas	45996	51081	71253	81471	107462	133674	166294
Phoenix	24914	28363	42181	49092	66828	84489	109491
Los Ang	60283	70787	113182	134141	188759	242524	309870
San Fran	59271	67089	99379	115193	155697	196358	248057
Denver	107711	116820	151064	169237	219444	266401	330712
Chicago	160592	178953	256716	294632	394309	491750	617752
St Louis	47726	53487	76656	88276	118175	150621	188230
Miami	44971	50251	70974	81500	108457	135325	170991
Seattle	51870	57559	80596	92082	122828	152579	189651
Mpls-St P	54727	61197	88140	101311	135255	169283	213788
Boston	45137	52616	83717	96668	136997	175322	224797
Buffalo	25047	32399	51093	60002	82813	106875	136140
Cleveland	61678	71223	113576	133366	185645	238502	306322
Detroit	49776	57273	88976	104310	145037	184515	236041
Pittsburg	15446	18205	29021	34435	48299	62081	79475
Tampa	31627	35033	47310	53703	69920	86160	106487
Houston	107147	116085	151839	169983	217054	263961	324710
Orla City	39245	43737	62406	71632	95523	121781	152412
Kans City	38550	43454	63658	73559	98719	124091	157322
TOTAL AC	1520150	1709694	2490850	2874761	3873909	4875342	6149785
\$000/mi	35	40	53	67	90	114	143
\$/cct-mi	.012	.011	.010	.009	.009	.009	.008
\$/cct	294.13	274.40	239.92	230.66	217.55	210.64	206.03

EXHIBIT 6.90A: 23 NODE LATA ACCESS

TOTAL COST



TOTAL COST PER CIRCUIT



YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

487 FC CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

NODE FC	1573060	1775472	1663471	1608794	2190926	2814760	3148993
\$000/mi	215	243	227	220	300	385	430
\$/cct-mi	.50	.47	.26	.21	.20	.20	.17
\$/cct	287.37	269.11	151.28	121.88	116.18	114.82	99.61
LATA FC	3357770	3638368	4728529	5288572	6781566	8305361	10219568
\$000/mi	57	62	81	90	116	142	174
\$/cct-mi	.016	.016	.012	.012	.010	.010	.009
\$/cct	748.14	672.59	524.47	488.64	438.61	413.21	394.27
TOTAL FC	4930830	5413840	6392000	6897366	8972492	11120122	13368560
\$000/mi	75	82	97	105	136	169	203
\$/cct-mi	.026	.023	.017	.015	.014	.013	.012
\$/cct	494.96	450.88	319.41	287.11	261.45	249.25	232.36
NODE AC	759649	866629	898593	906788	1251447	1613237	1873750
\$000/mi	104	118	123	124	171	221	256
\$/cct-mi	.24	.23	.14	.12	.12	.11	.10
\$/cct	138.78	131.35	81.72	68.70	66.36	65.81	59.27
LATA AC	1669022	1844531	2538123	2888911	3811741	4747213	5921856
\$000/mi	28	31	43	49	65	81	101
\$/cct-mi	.009	.008	.007	.006	.006	.006	.005
\$/cct	371.87	340.98	281.52	266.92	246.53	236.18	228.46
TOTAL AC	2428671	2711160	3436716	3795699	5063188	6360451	7795606
\$000/mi	37	41	52	58	77	97	118
\$/cct-mi	.013	.012	.009	.008	.008	.007	.007
\$/cct	243.79	225.80	171.73	158.00	147.53	142.57	135.50

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EXHIBIT 6.91: 11 NODE NETWORK - COMBINED COST SUMMARY

Page 2 of 4

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

48f FC CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
NODE FC							
\$000/mi	1566397	1445271	1513826	2005121	2524395	3056944	
\$/cct-mi	214	198	207	274	345	418	
\$/cct	.41	.25	.20	.18	.18	.17	
LATA FC							
\$000/mi	3638368	4728529	5288572	6781566	8305361	10219568	
\$/cct-mi	62	81	90	116	142	174	
\$/cct	.016	.012	.012	.010	.010	.009	
TOTAL FC							
\$000/mi	5204766	6173800	6802399	8786687	10829756	13276511	
\$/cct-mi	79	94	103	133	164	201	
\$/cct	.022	.016	.015	.013	.013	.012	
NODE AC							
\$000/mi	772048	811710	870034	1178194	1497598	1838827	
\$/cct-mi	106	111	119	161	205	251	
\$/cct	.20	.13	.11	.11	.11	.10	
LATA AC							
\$000/mi	1844531	2538123	2888911	3811741	4747213	5921856	
\$/cct-mi	31	43	49	65	81	101	
\$/cct	.008	.007	.006	.006	.006	.005	
TOTAL AC							
\$000/mi	340.98	281.52	266.92	246.53	236.18	228.46	
TOTAL							
\$000/mi	2616579	3349833	3758945	4989935	6244812	7760684	
\$/cct-mi	40	51	57	76	95	118	
\$/cct	.011	.009	.008	.008	.007	.007	
TOTAL							
\$/cct	217.92	167.39	156.47	145.40	139.97	134.89	

453

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

96f FC CA	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps
NODE FC	1874342	1690397	1705789	2249753	2881267	3245987
\$000/mi	256	231	233	308	394	444
\$/cct-mi	.49	.27	.22	.21	.20	.18
\$/cct	284.09	153.73	129.23	119.30	117.53	102.68
LATA FC	3638368	4728529	5288572	6781566	8305361	10219568
\$000/mi	62	81	90	116	142	174
\$/cct-mi	.016	.012	.012	.010	.010	.009
\$/cct	672.59	524.47	488.64	438.61	413.21	394.27
TOTAL FC	5512710	6418926	6994361	9031318	11186628	13465555
\$000/mi	84	97	106	137	170	204
\$/cct-mi	.024	.017	.015	.014	.013	.012
\$/cct	459.12	320.76	291.15	263.16	250.74	234.04
NODE AC	906490	909449	945892	1275164	1640050	1912854
\$000/mi	124	124	129	174	224	261
\$/cct-mi	.24	.14	.12	.12	.12	.10
\$/cct	137.40	82.71	71.66	67.62	66.90	60.51
LATA AC	1844531	2538123	2888911	3811741	4747213	5921856
\$000/mi	31	43	49	65	81	101
\$/cct-mi	.008	.007	.006	.006	.006	.005
\$/cct	340.98	281.52	266.92	246.53	236.18	228.46
TOTAL AC	2751021	3447572	3834803	5086905	6387264	7834711
\$000/mi	42	52	58	77	97	119
\$/cct-mi	.012	.009	.008	.008	.007	.007
\$/cct	229.12	172.28	159.63	148.23	143.17	136.17

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EXHIBIT 6.91: 11 NODE NETWORK - COMBINED COST SUMMARY

Page 4 of 4

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

NODE FC	1642084	1586672	1712635	2203930	2695067	3255752
\$000/mi	224	217	234	301	368	445
\$/cct-mi	.43	.25	.22	.20	.19	.18
\$/cct	248.89	144.29	129.74	116.87	109.94	102.99

LATA FC	3638368	4728529	5288572	6781566	8305361	10219568
\$000/mi	62	81	90	116	142	174
\$/cct-mi	.016	.012	.012	.010	.010	.009
\$/cct	672.59	524.47	488.64	438.61	413.21	394.27

TOTAL FC	5280452	6315202	7001207	8985496	11000429	13475320
\$000/mi	80	96	106	136	167	204
\$/cct-mi	.023	.016	.015	.014	.013	.012
\$/cct	439.78	315.57	291.44	261.83	246.57	234.21

NODE AC	802562	868718	950187	1258346	1566407	1918979
\$000/mi	110	119	130	172	214	262
\$/cct-mi	.21	.14	.12	.12	.11	.11
\$/cct	121.64	79.00	71.98	66.73	63.90	60.70

LATA AC	1844531	2538123	2888911	3811741	4747213	5921856
\$000/mi	31	43	49	65	81	101
\$/cct-mi	.008	.007	.006	.006	.006	.005
\$/cct	340.98	281.52	266.92	246.53	236.18	228.46

TOTAL AC	2647093	3406841	3839097	5070087	6313621	7840836
\$000/mi	40	52	58	77	96	119
\$/cct-mi	.011	.009	.008	.008	.007	.007
\$/cct	220.46	170.24	159.81	147.74	141.52	136.28

EXHIBIT 6.91A: 11 NODE NETWORK -- COMBINED

FIRST COST PER CIRCUIT

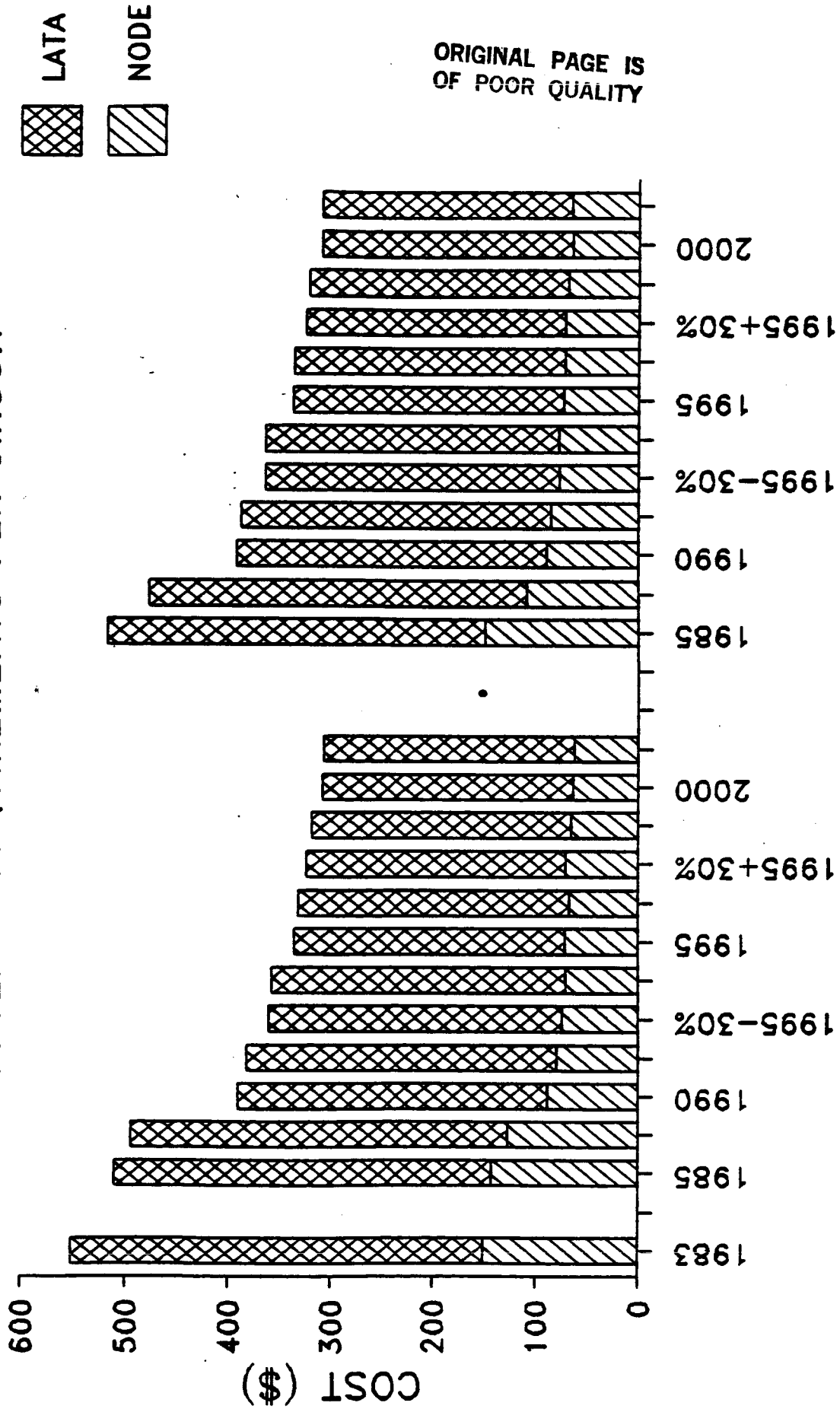


24f/48f FO CABLE

24f/96f FO CABLE

EXHIBIT 6.91B: 11 NODE NETWORK - COMBINED

REVENUE REQUIREMENTS PER CIRCUIT



24f/96f FO CABLE

24f/48f FO CABLE

EXHIBIT 6.92: 11 NODE NETWORK - COMBINED EQUIPMENT COSTS (1983)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	1436205
Total VF Circuits	2393674
Circuit Miles (M)	29004

NODE NETWORK: 25 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 25 mi Repeater Spacing

405 mbps Dig FO Sys
 FC(\$000) RR(\$000)

24f/48f FO Cable	2816251	1248059
FO Trans/Rcvr	64656	43141
FO Line Repeater	412320	275116
Bldng/CEV, Power	145810	64205
T1 & M13 Multiplex	1491793	995383

EXHIBIT 6.92A: 11 NODE NETWORK (1983)

COMBINED EQUIPMENT COSTS

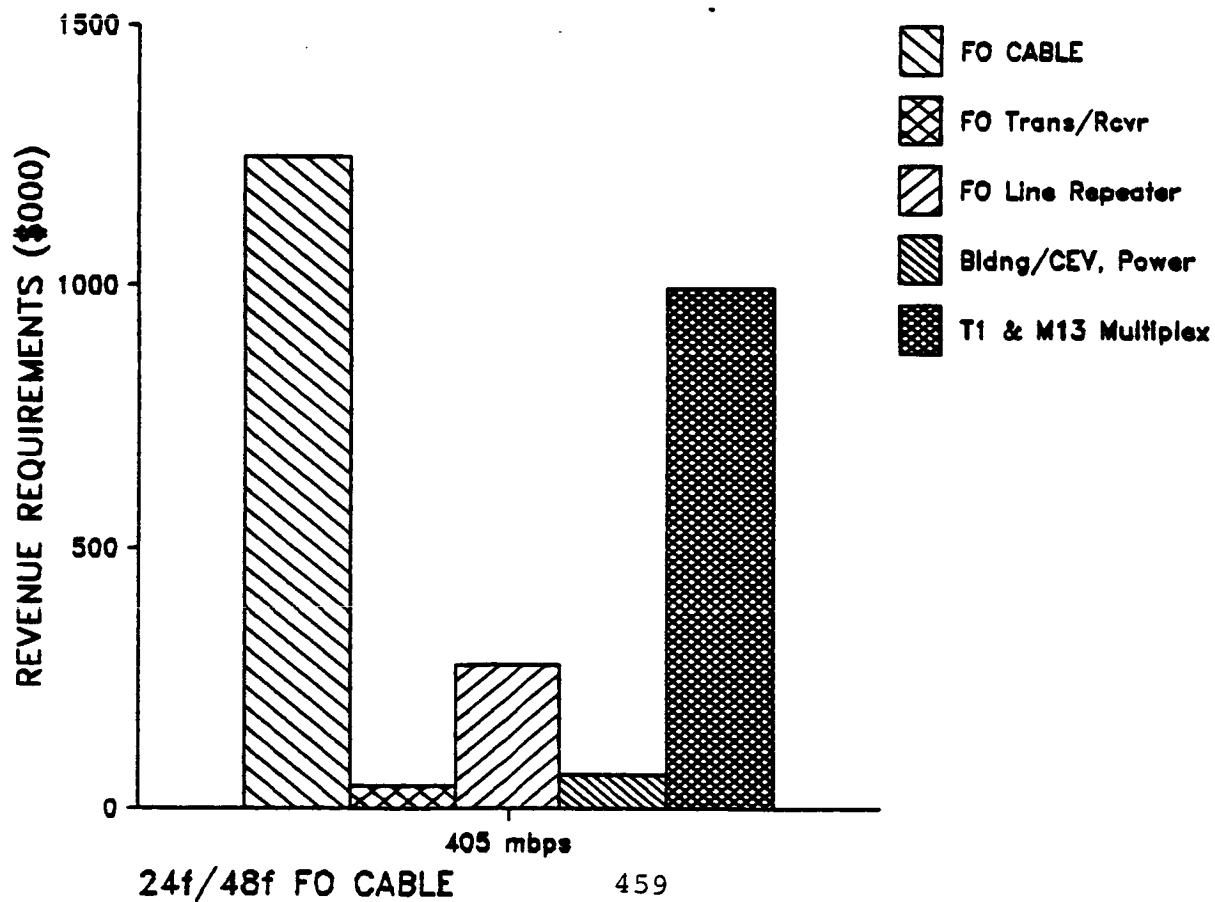
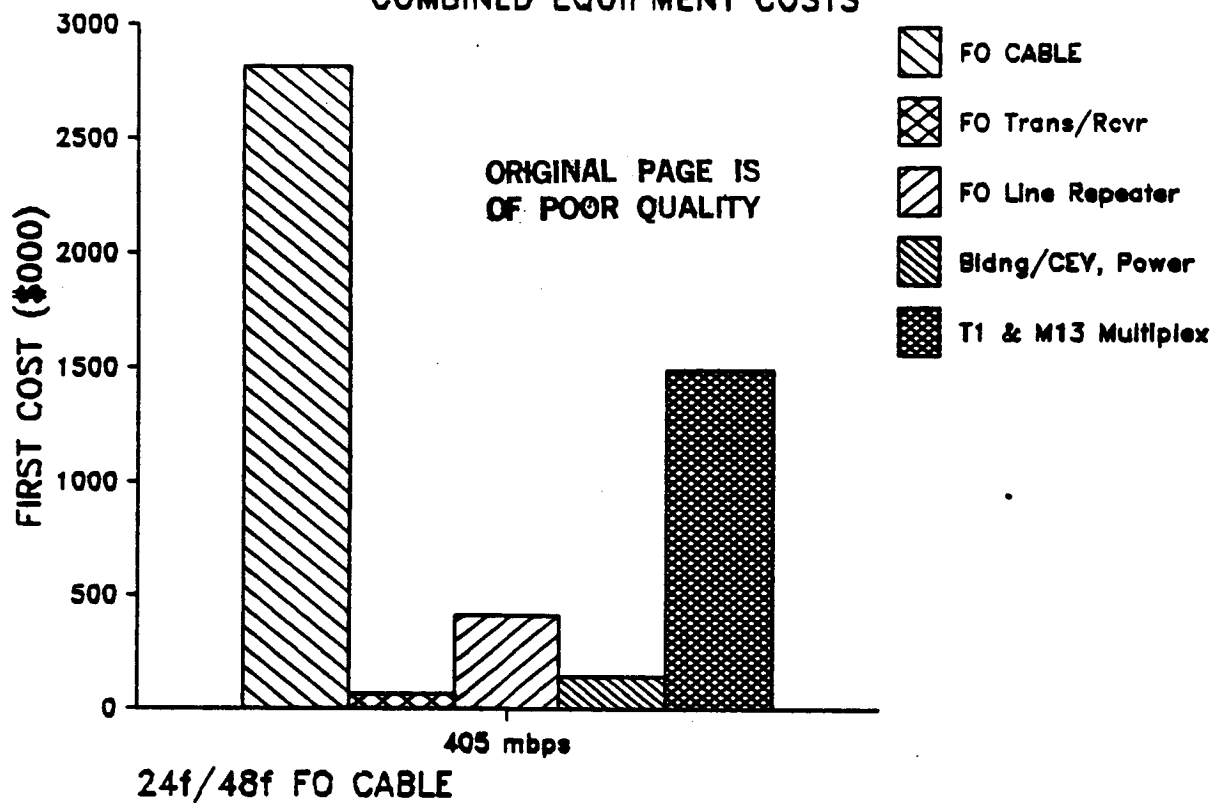


EXHIBIT 6.93: 11 NODE NETWORK - COMBINED EQUIPMENT COSTS (1985)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	1731038
Total VF Circuits	2885063
Circuit Miles (M)	34958

NODE NETWORK: 25 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 25 mi Repeater Spacing

	405 mbps Dig FO Sys FC(\$000) RR(\$000)		565 mbps Dig FO Sy FC(\$000) RR(\$000)	
24f/48f FO Cable	2907622	1288551	2744468	1216247
FO Trans/Rcvr	75816	50587	70579	47093
FO Line Repeater	487332	325167	446648	298022
Bldng/CEV, Power	145810	64205	145810	64205
T1 & M13 Multiplex	1797260	1199203	1797260	1199203

	405 mbps Dig FO Sys FC(\$000) RR(\$000)		565 mbps Dig FO Sy FC(\$000) RR(\$000)	
24f/96f FO Cable	3006492	1332366	2820154	1098655
FO Trans/Rcvr	75816	50587	70579	47093
FO Line Repeater	487332	325167	446648	298022
Bldng/CEV, Power	145810	64205	145810	64205
T1 & M13 Multiplex	1797260	1199203	1797260	1199203

EXHIBIT 6.93A: 11 NODE NETWORK (1985)

COMBINED EQUIPMENT COSTS

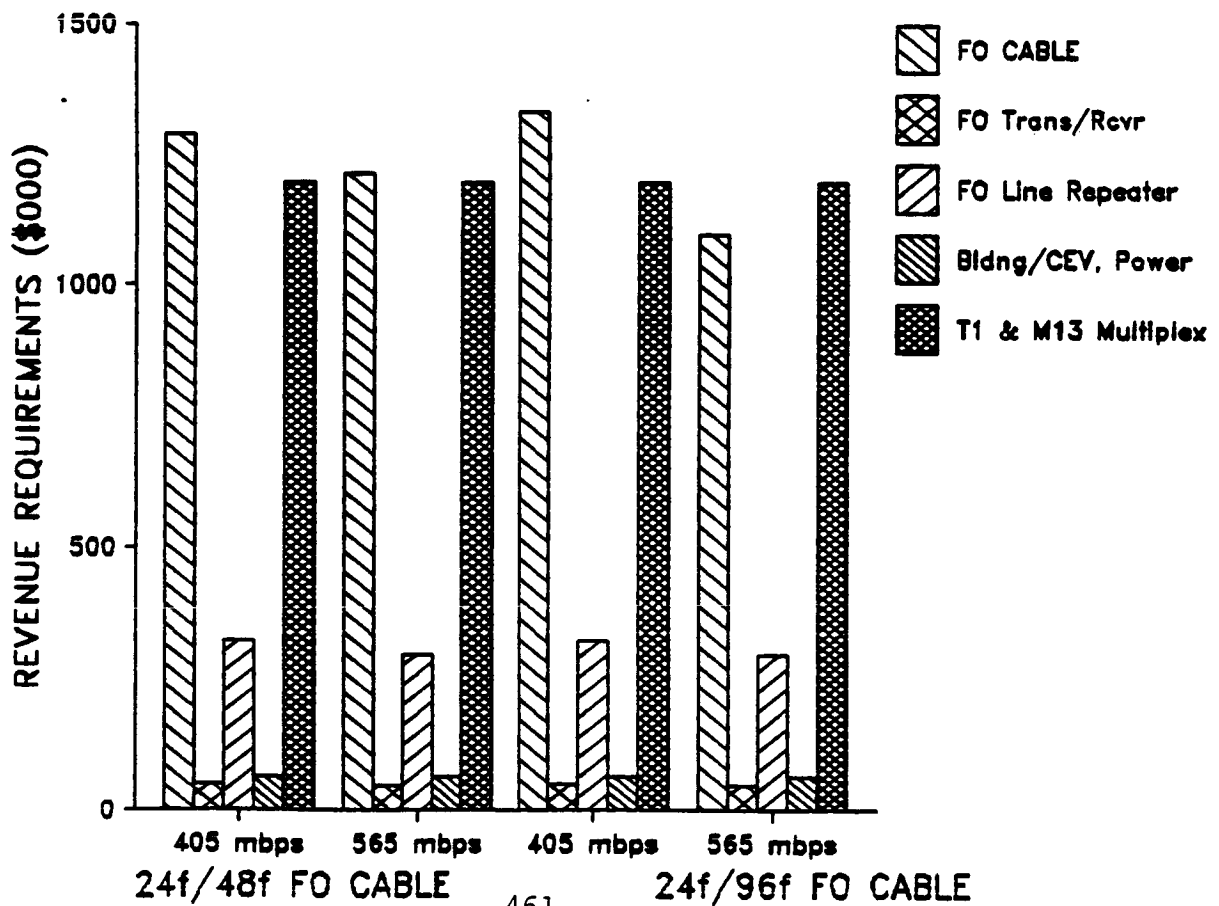
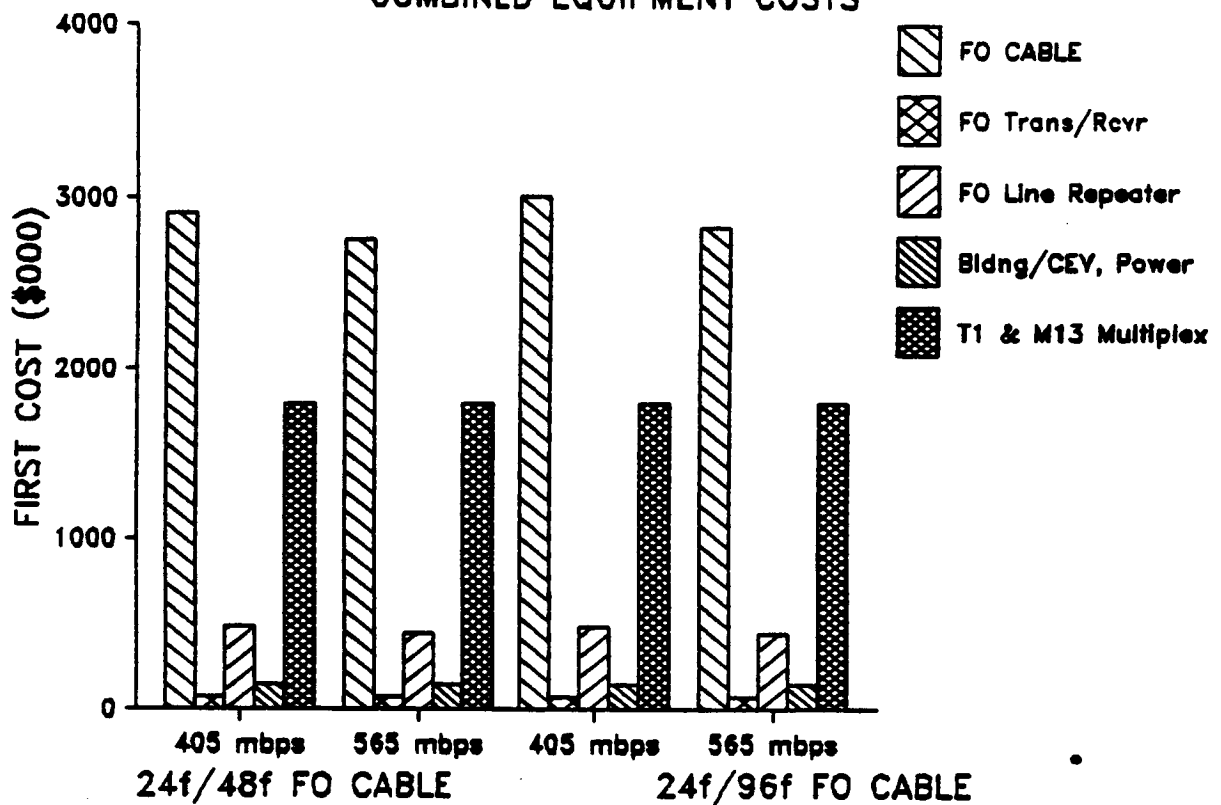


EXHIBIT 6.94: 11 NODE NETWORK - COMBINED EQUIPMENT COSTS (1990)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	2885063
Total VF Circuits	4808438
Circuit Miles (M)	58264

NODE NETWORK: 50 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 50 mi Repeater Spacing

	810 mbps Dig FO Sys FC(\$000) RR(\$000)		1.7 gbps Dig FO Sy FC(\$000) RR(\$000)	
24f/48f FO Cable	2471516	1095285	2248465	996437
FO Trans/Rcvr	60777	40553	61596	41099
FO Line Repeater	195366	130356	199398	133046
Bldng/CEV, Power	82820	36470	82820	36470
T1 & M13 Multiplex	3581521	2389733	3581521	2389733
	810 mbps Dig FO Sys FC(\$000) RR(\$000)		1.7 gbps Dig FO Sy FC(\$000) RR(\$000)	
24f/96f FO Cable	2498442	1107218	2389867	1059101
FO Trans/Rcvr	60777	40553	61596	41099
FO Line Repeater	195366	130356	199398	133046
Bldng/CEV, Power	82820	36470	82820	36470
T1 & M13 Multiplex	3581521	2389733	3581521	2389733

EXHIBIT 6.94A: 11 NODE NETWORK (1990)

COMBINED EQUIPMENT COSTS

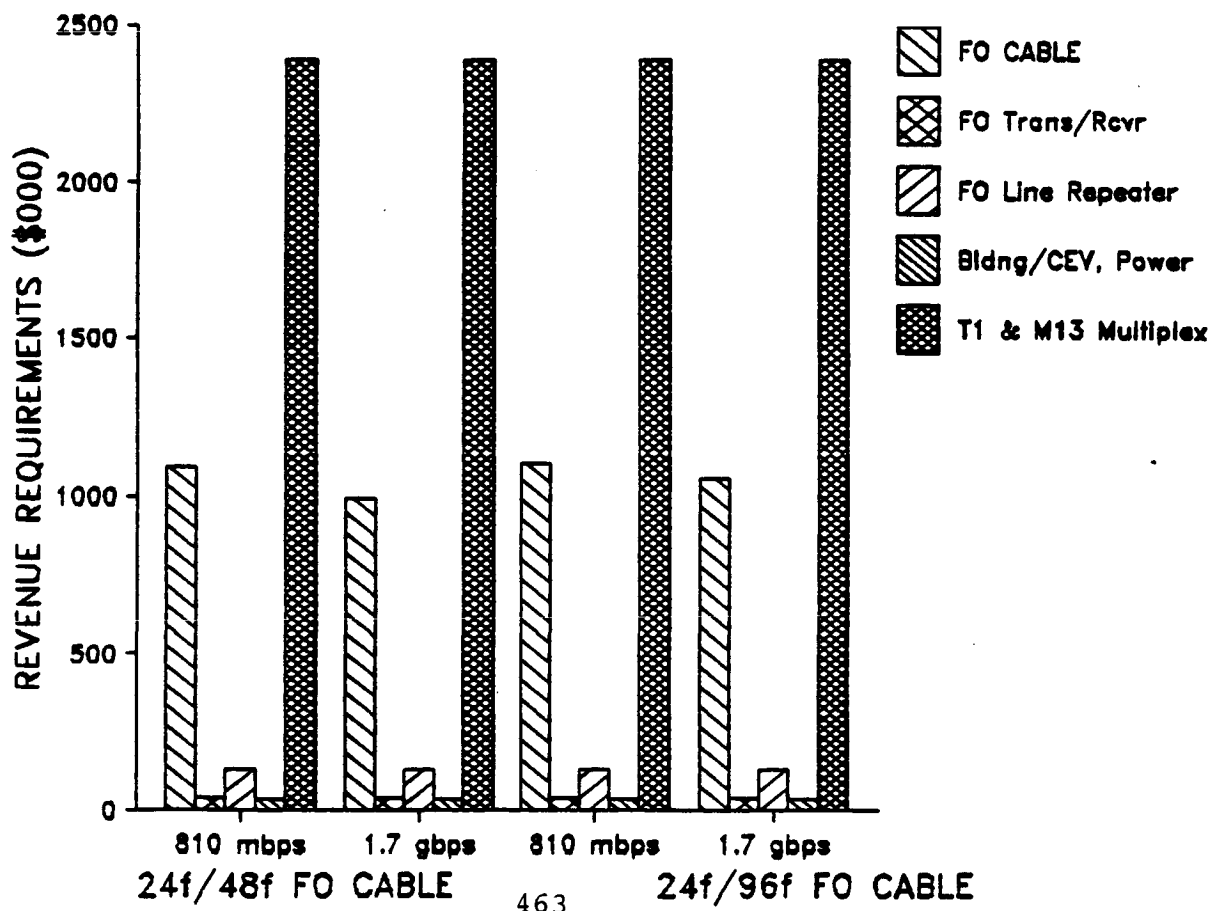
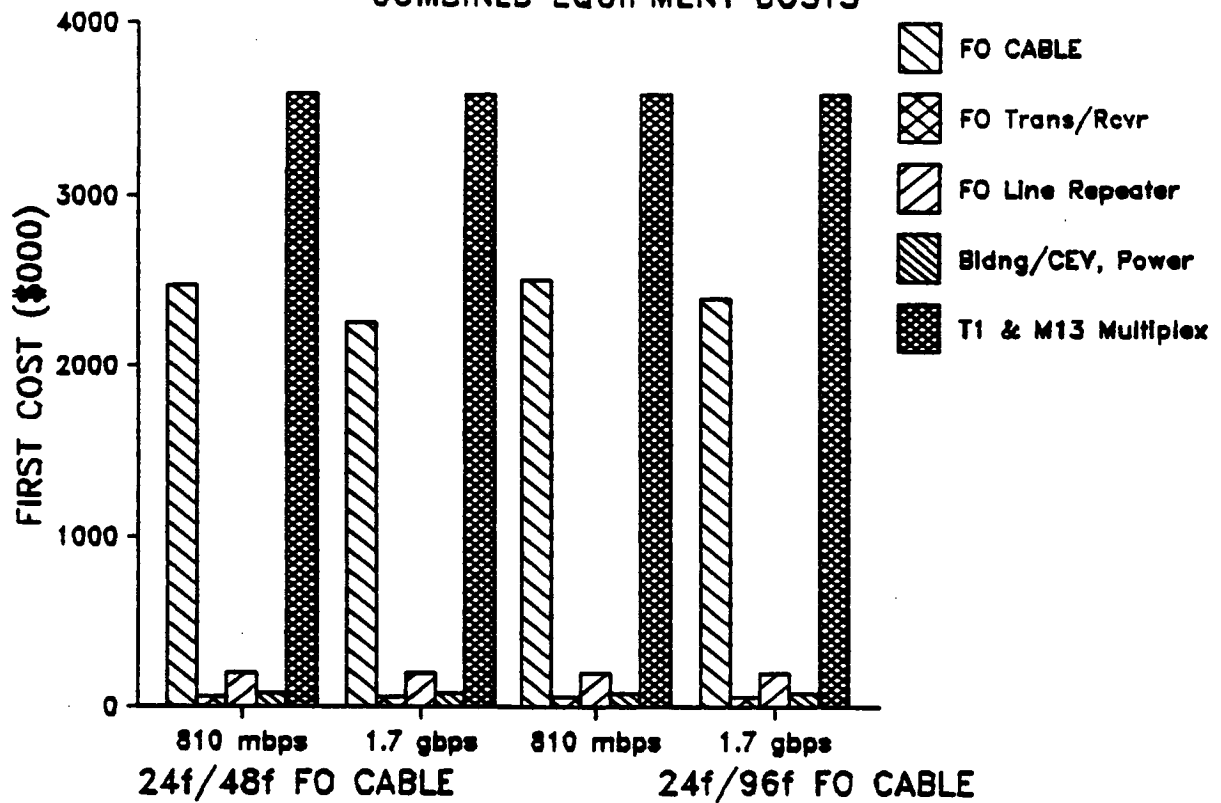


EXHIBIT 6.95: 11 NODE NETWORK - COMBINED EQUIPMENT COSTS (1995)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	6431919
Total VF Circuits	10719865
Circuit Miles (M)	126630

NODE NETWORK: 100 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 50 mi Repeater Spacing

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/48f FO Cable	2537957	1124729	2344760	1039111
FO Trans/Rcvr	108414	72338	110871	73978
FO Line Repeater	242364	161715	247299	165008
Bldng/CEV, Power	72020	31723	72020	31723
T1 & M13 Multiplex	7535533	5028007	7535533	5028007

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/96f FO Cable	2596783	1150799	2543568	1127216
FO Trans/Rcvr	108414	72338	110871	73978
FO Line Repeater	242364	161715	247299	165008
Bldng/CEV, Power	72020	31723	72020	31723
T1 & M13 Multiplex	7535533	5028007	7535533	5028007

EXHIBIT 6.95A: 11 NODE NETWORK (1995)

COMBINED EQUIPMENT COSTS

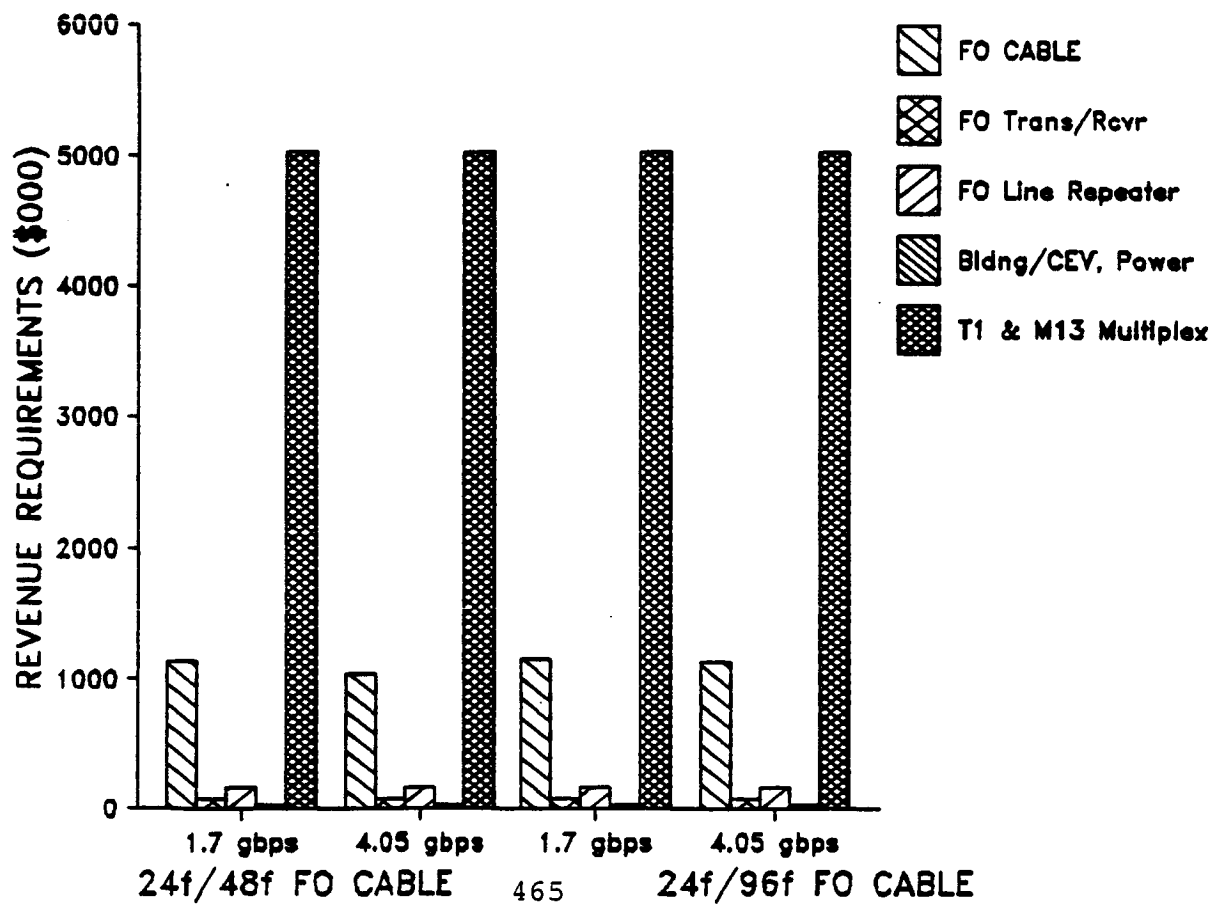
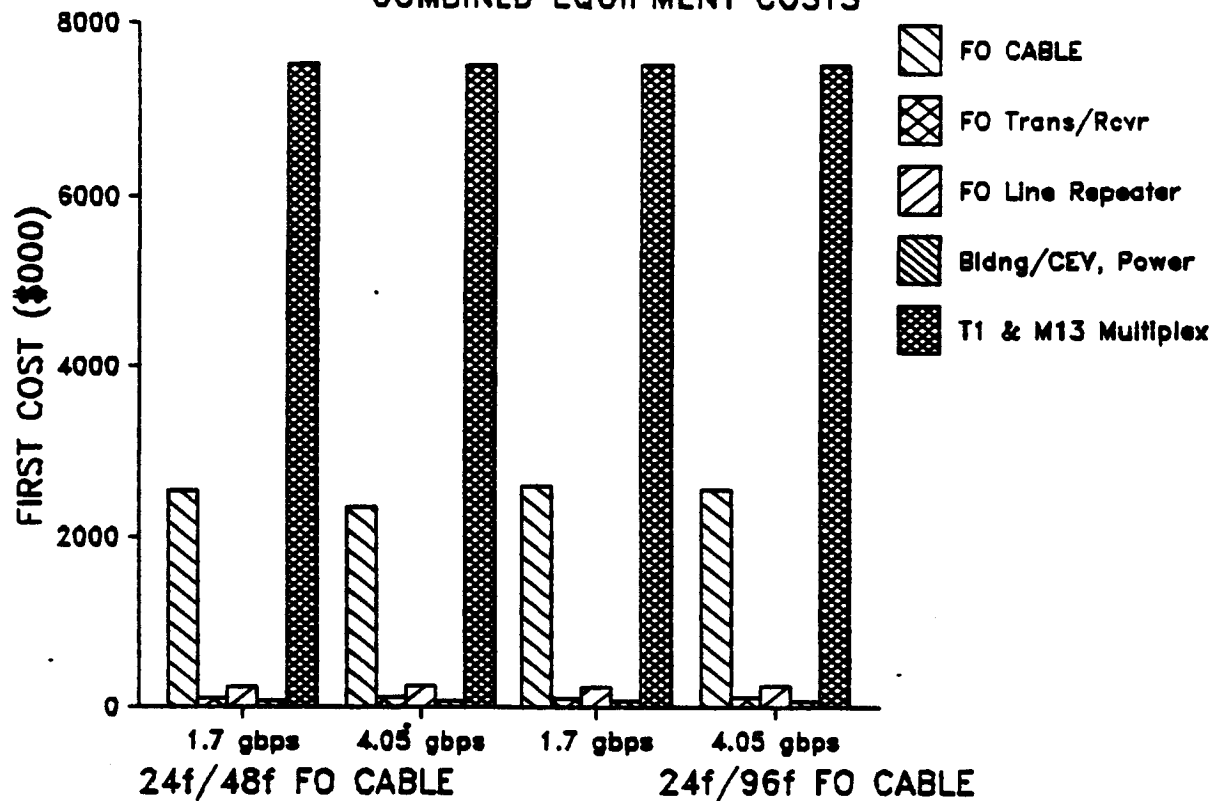


EXHIBIT 6.96: 11 NODE NETWORK - COMBINED EQUIPMENT COSTS (1995+30%)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	3463341
Total VF Circuits	5772235
Circuit Miles (M)	76468

NODE NETWORK: 100 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 50 mi Repeater Spacing

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/48f FO Cable	2518126	1115941	2221398	984442
FO Trans/Rcvr	103626	69143	105390	70320
FO Line Repeater	227610	151870	232209	154939
Bldng/CEV, Power	72020	31723	72020	31723
T1 & M13 Multiplex	5181951	3457603	5181951	3457603

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/96f FO Cable	2584632	1145414	2392070	1060077
FO Trans/Rcvr	103626	69143	105390	70320
FO Line Repeater	227610	151870	232209	154939
Bldng/CEV, Power	72020	31723	72020	31723
T1 & M13 Multiplex	5181951	3457603	5181951	3457603

EXHIBIT 6.96A: 11 NODE NETWORK (1995+30%) COMBINED EQUIPMENT COSTS

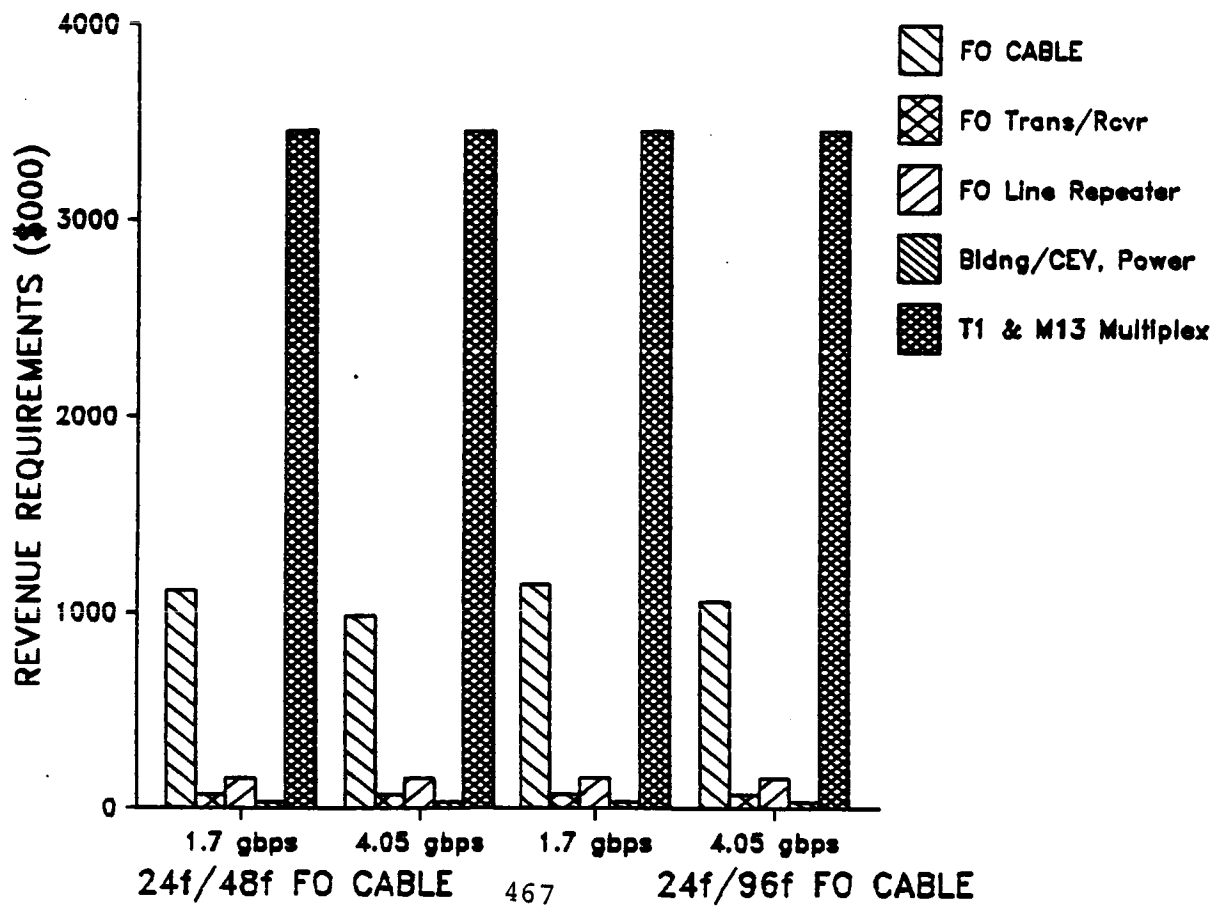
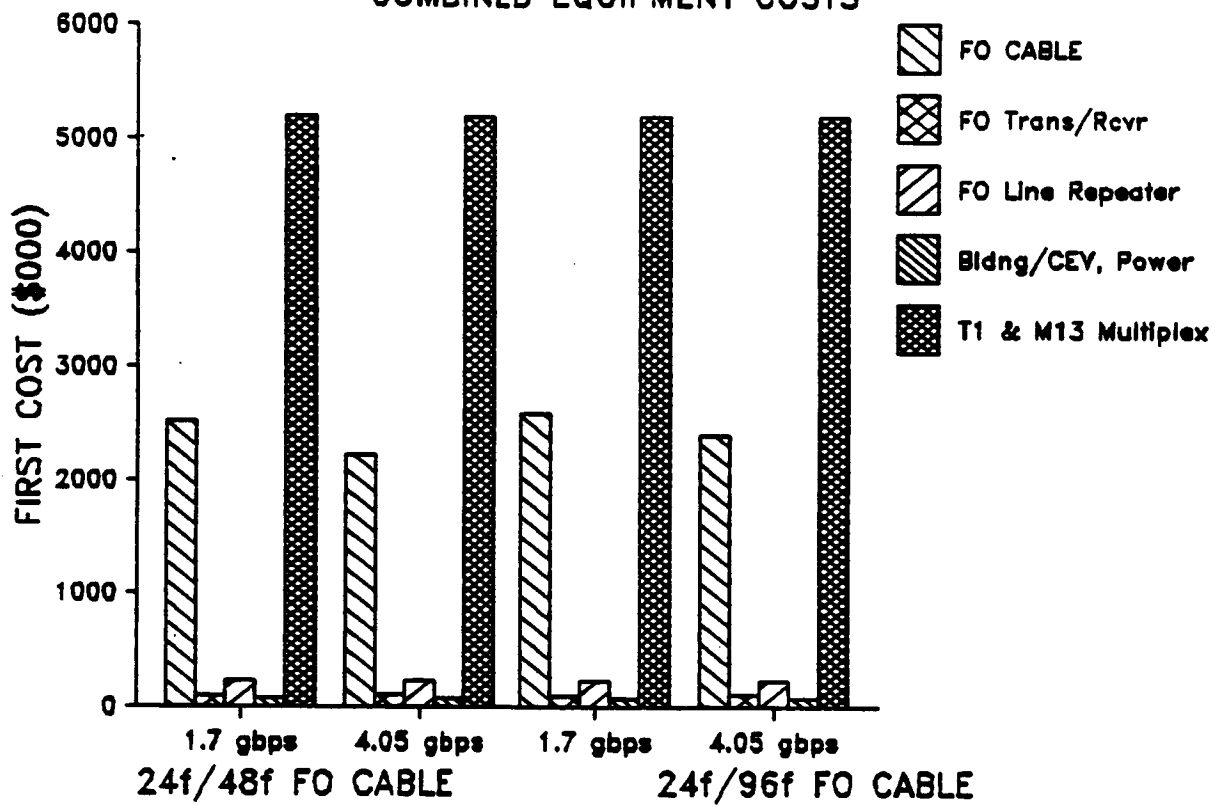


EXHIBIT 6.97: 11 NODE NETWORK - COMBINED EQUIPMENT COSTS (1995-30%)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	4947630
Total VF Circuits	8246050
Circuit Miles (M)	96655

NODE NETWORK: 100 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 50 mi Repeater Spacing

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/48f FO Cable	2355925	1044059	2254111	998939
FO Trans/Rcvr	82080	54767	84222	56196
FO Line Repeater	184362	123014	189066	126152
Bldng/CEV, Power	72020	31723	72020	31723
T1 & M13 Multiplex	5695973	3800580	5695973	3800580

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/96f FO Cable	2452919	1087043	2452919	1087043
FO Trans/Rcvr	82080	54767	84222	56196
FO Line Repeater	184362	123014	189066	126152
Bldng/CEV, Power	72020	31723	72020	31723
T1 & M13 Multiplex	5695973	3800580	5695973	3800580

EXHIBIT 6.97A: 11 NODE NETWORK (1995-30%)

COMBINED EQUIPMENT COSTS

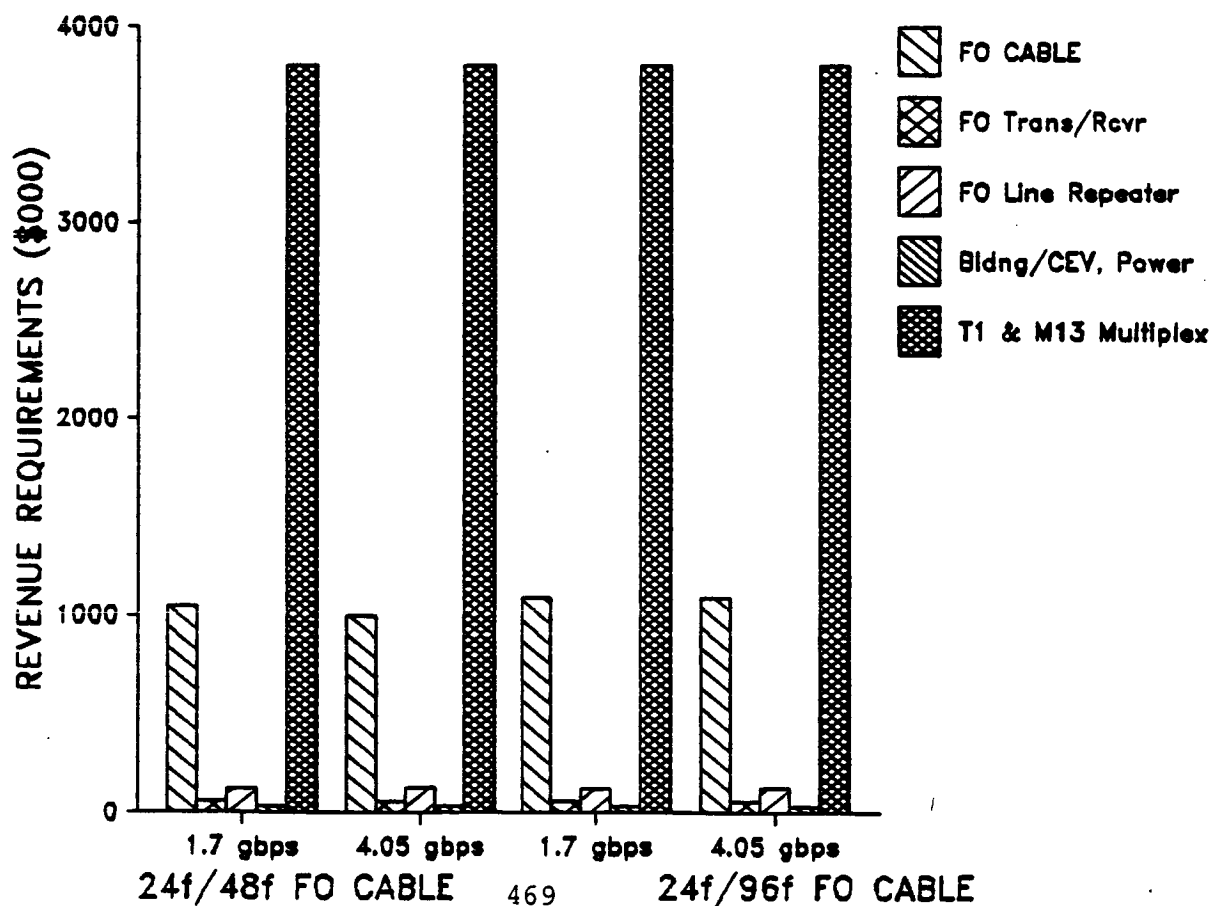
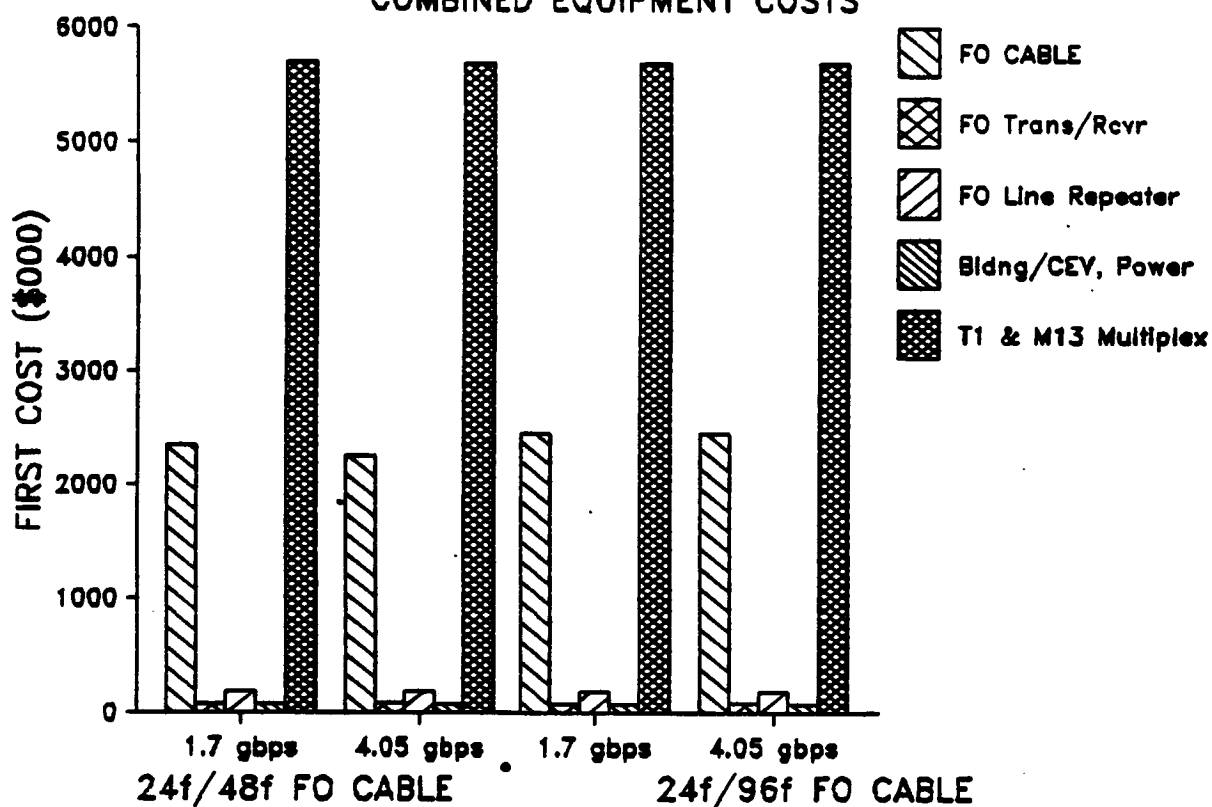


EXHIBIT 6.98: 11 NODE NETWORK - COMBINED EQUIPMENT COSTS (2000)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	8294536
Total VF Circuits	13824260
Circuit Miles (M)	167509

NODE NETWORK: 150 mi Repeater Spacing

LATA ACCESS: 405 mbps Line Rate, 50 mi Repeater Spacing

	4.05 gbps Dig FO Sys FC(\$000) RR(\$000)		8.1 gbps Dig FO Sy FC(\$000) RR(\$000)	
24f/48f FO Cable	2562710	1135698	2460896	1090578
FO Trans/Rcvr	160236	106916	164646	109858
FO Line Repeater	291357	194405	296712	197978
Bldng/CEV, Power	68120	30010	68120	30010
T1 & M13 Multiplex	10286138	6863320	10286138	6863320

	4.05 gbps Dig FO Sys FC(\$000) RR(\$000)		8.1 gbps Dig FO Sy FC(\$000) RR(\$000)	
24f/96f FO Cable	2659704	1178683	2659704	1178683
FO Trans/Rcvr	160236	106916	164646	109858
FO Line Repeater	291357	194405	296712	197978
Bldng/CEV, Power	68120	30010	68120	30010
T1 & M13 Multiplex	10286138	6863320	10286138	6863320

EXHIBIT 6.98A: 11 NODE NETWORK (2000)

COMBINED EQUIPMENT COSTS

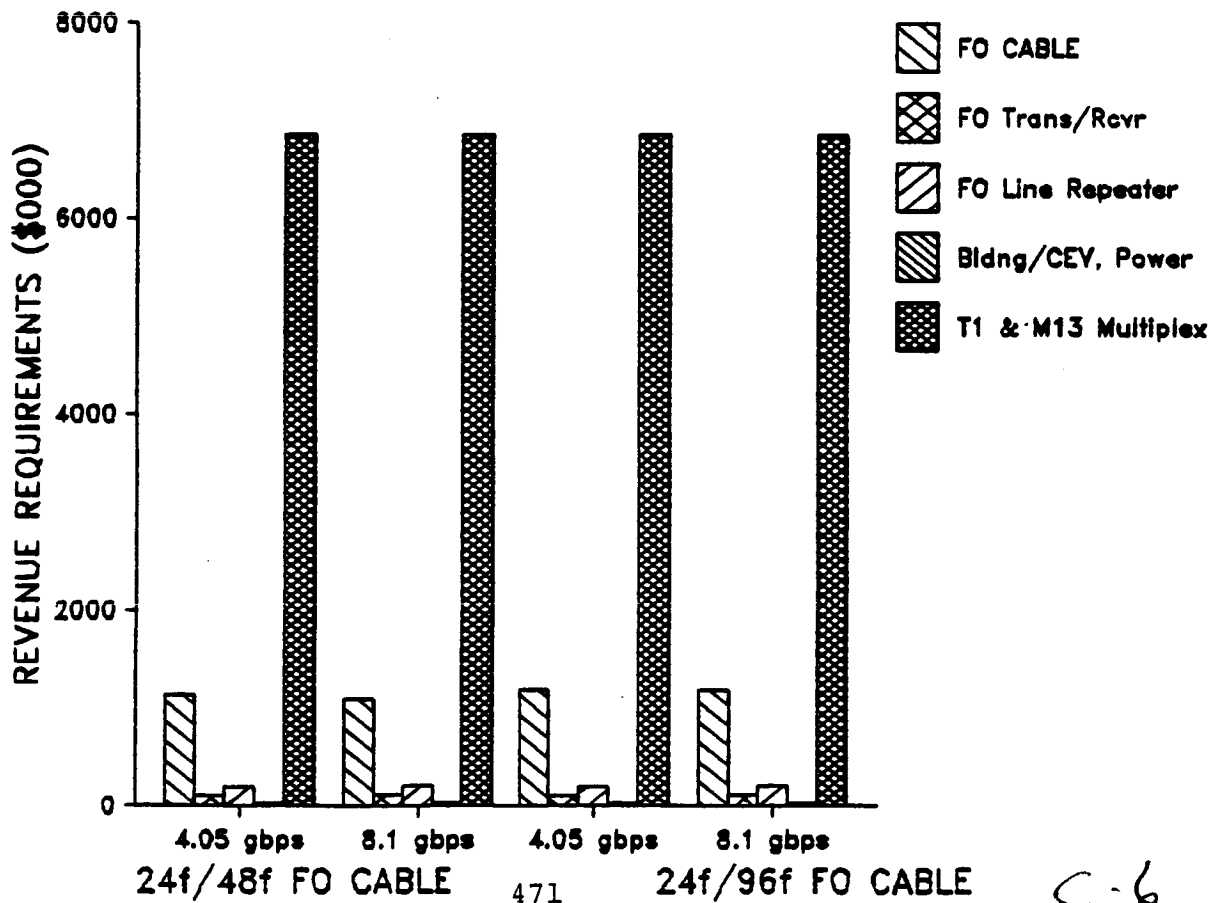
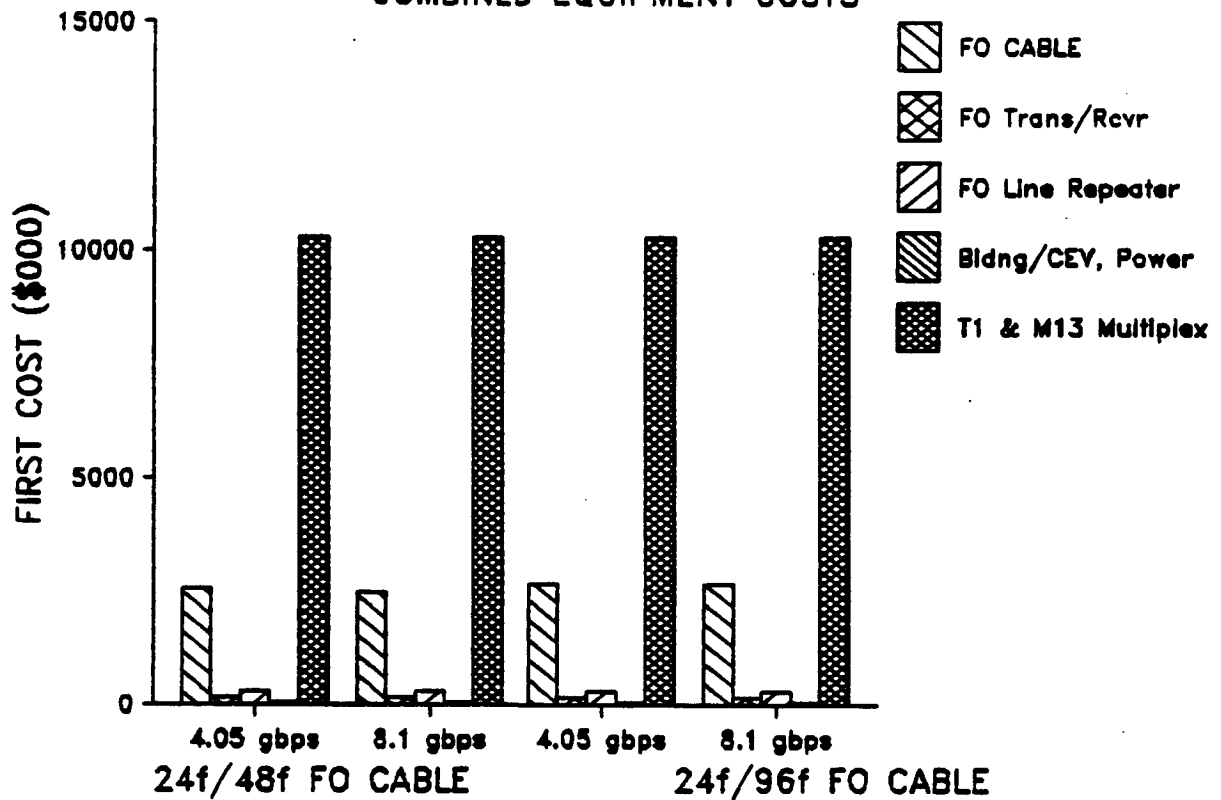


EXHIBIT 6.99: 11 NODE NETWORK - REVENUE REQUIREMENTS SUMMARY

Node Network: 48f or 96f FO Cable, various transmission rates
LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC 2530758							
Erlangs	1436205	1731038	2885064	3463342	4947632	6431921	8294559

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2625904	2927714	3692397	4071593	5422088	6805256	8330349
\$000/mi	40	44	56	62	82	103	126
\$/cct-mi	.014	.013	.010	.009	.008	.008	.007
\$/cct	263.59	243.83	184.51	169.49	157.99	152.54	144.79
\$/minute	.008	.007	.005	.005	.005	.005	.004

48f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2824770	3596785	4031041	5341402	6678002	8291744	
\$000/mi	43	55	61	81	101	126	
\$/cct-mi	.012	.009	.009	.008	.008	.007	
\$/cct	235.26	179.73	167.80	155.64	149.68	144.12	
\$/minute	.007	.005	.005	.005	.004	.004	

96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

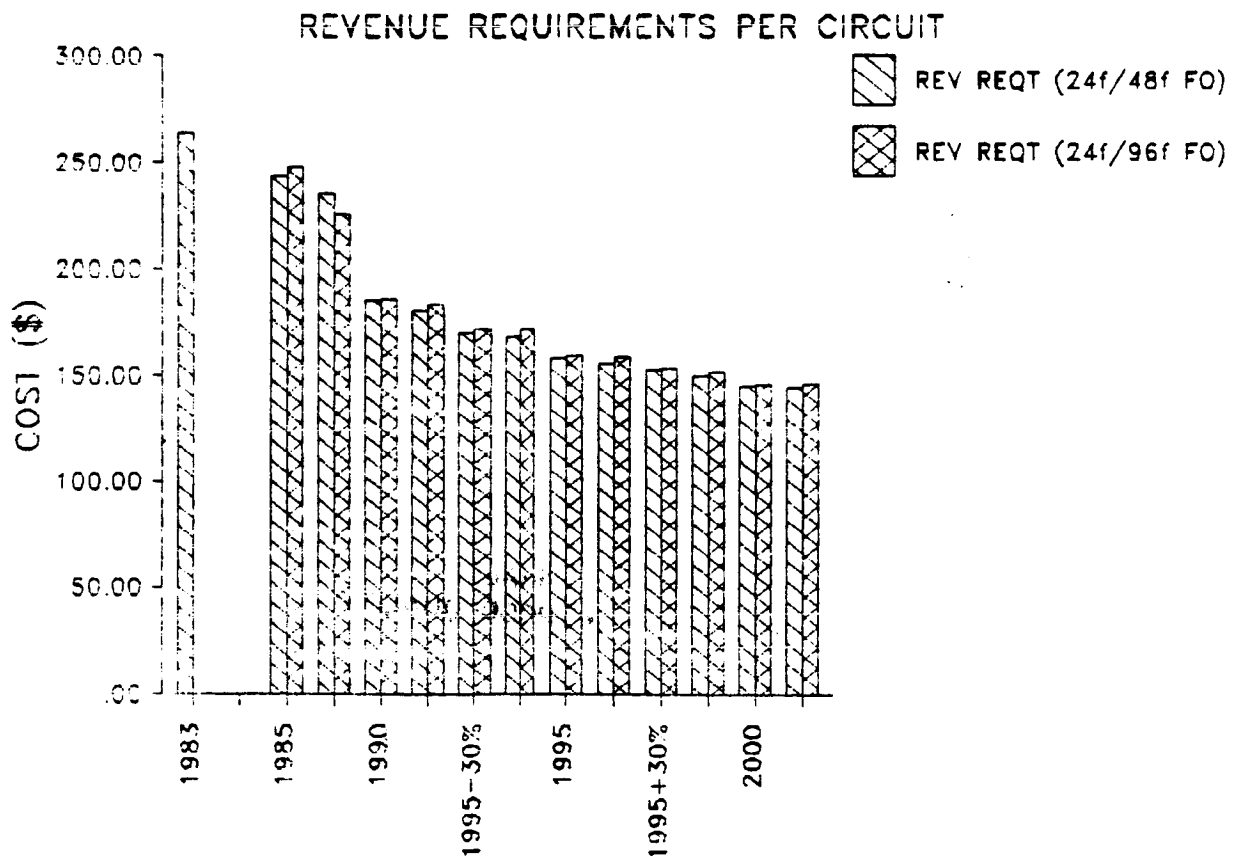
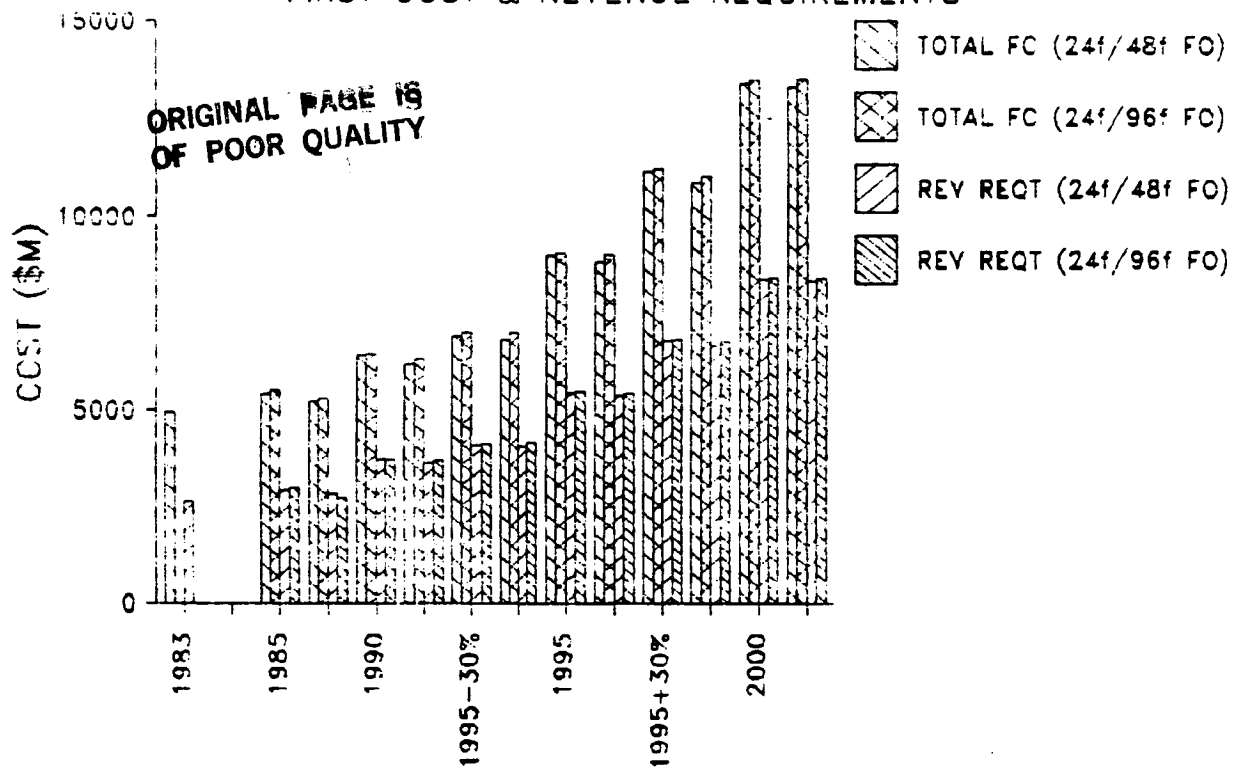
REV REQ	2971529	3704329	4114578	5448157	6834729	8373333	
\$000/mi	45	56	62	83	104	127	
\$/cct-mi	.013	.010	.009	.008	.008	.008	
\$/cct	247.48	185.11	171.28	158.75	153.20	145.54	
\$/minute	.007	.005	.005	.005	.005	.004	

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2858311	3659449	4119146	5429507	6753638	8379849	
\$000/mi	43	56	63	82	102	127	
\$/cct-mi	.012	.009	.009	.008	.008	.008	
\$/cct	238.05	182.86	171.47	158.21	151.38	145.65	
\$/minute	.007	.005	.005	.005	.004	.004	

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EXHIBIT 6.99A: 11 NODE NETWORK – FINANCIAL FIRST COST & REVENUE REQUIREMENTS



YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.664	1.14	1.3685	1.955	2.5415	3.2775
Mt Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.664	1.14	1.3685	1.955	2.5415	3.2775
Mt Factor	1.35						
Init Fill	.8						

48+ FL CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

NODE FC	1867561	2157249	1985782	1992588	2558398	3201648	3632044
\$000/mi	141	163	150	150	193	242	274
\$/cct-mi	.55	.53	.29	.24	.22	.21	.19
\$/cct	315.29	302.17	166.89	139.50	125.38	120.69	106.17
LATA FC	3138455	3428162	4574456	5154434	6679560	8224555	10182780
\$000/mi	61	67	89	100	130	160	198
\$/cct-mi	.019	.018	.014	.013	.012	.011	.011
\$/cct	663.10	600.94	481.13	451.61	409.67	388.02	372.52
TOTAL FC	5006016	5585411	6560238	7147023	9237958	11426204	13814824
\$000/mi	77	86	102	111	143	177	214
\$/cct-mi	.030	.028	.020	.018	.016	.016	.015
\$/cct	469.77	434.87	306.46	278.12	251.64	239.43	224.47
NODE AC	888873	1033326	1048135	1083221	1430262	1808879	2118711
\$000/mi	67	78	79	82	108	136	160
\$/cct-mi	.26	.25	.15	.13	.12	.12	.11
\$/cct	150.06	144.74	88.09	75.84	70.09	68.19	61.93
LATA AC	1587919	1769141	2496777	2860069	3806780	4761750	5968232
\$000/mi	31	34	49	56	74	93	116
\$/cct-mi	.010	.009	.008	.007	.007	.007	.006
\$/cct	335.50	310.12	262.61	250.59	233.48	224.65	218.34
TOTAL AC	2476792	2802467	3544912	3943290	5237042	6570630	8086943
\$000/mi	38	43	55	61	81	102	125
\$/cct-mi	.015	.014	.011	.010	.009	.009	.009
\$/cct	232.42	218.19	165.60	153.45	142.66	137.68	131.40

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YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

48f FC CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
NODE FC							
\$000/mi	1907612	1815342	1906314	2441027	2966524	3573534	
\$/cct-mi	144	137	144	184	224	270	
\$/cct	.47	.27	.23	.21	.19	.18	
LATA FC							
\$000/mi	3428162	4574456	5154434	6679560	8224555	10182780	
\$/cct-mi	67	89	100	130	160	198	
\$/cct	.018	.014	.013	.012	.011	.011	
TOTAL FC							
\$000/mi	5335774	6389797	7060749	9120587	11191080	13756314	
\$/cct-mi	83	99	109	141	173	213	
\$/cct	.027	.019	.018	.016	.015	.014	
NODE AC							
\$000/mi	921297	981029	1051921	1387314	1716274	2099239	
\$/cct-mi	70	74	79	105	129	158	
\$/cct	.22	.14	.13	.12	.11	.11	
LATA AC							
\$000/mi	1769141	2496777	2860069	3806780	4761750	5968232	
\$/cct-mi	34	49	56	74	93	116	
\$/cct	.009	.008	.007	.007	.007	.006	
TOTAL AC							
\$000/mi	2690438	3477806	3911990	5194094	6478024	8067472	
\$/cct-mi	42	54	61	80	100	125	
\$/cct	.014	.011	.010	.009	.009	.008	
\$/cct	209.47	162.46	152.23	141.49	135.74	131.09	

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YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

96+ FD CA	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps

NODE FC	2367824	2205472	2251015	2787267	3423586	3915400
\$000/mi	179	166	170	210	258	295
\$/cct-mi	.58	.32	.27	.24	.22	.20
\$/cct	331.66	185.35	157.59	136.59	129.06	114.45

LATA FC	3428162	4574456	5154434	6679560	8224555	10182780
\$000/mi	67	89	100	130	160	198
\$/cct-mi	.018	.014	.013	.012	.011	.011
\$/cct	600.94	481.13	451.61	409.67	388.02	372.52

TOTAL FC	5795986	6779928	7405449	9466827	11648142	14098180
\$000/mi	90	105	115	147	180	218
\$/cct-mi	.029	.021	.019	.017	.016	.015
\$/cct	451.26	316.72	288.18	257.88	244.08	229.08

NODE AC	1118222	1136706	1187409	1522533	1898356	2232949
\$000/mi	84	86	90	115	143	168
\$/cct-mi	.27	.17	.14	.13	.12	.11
\$/cct	156.63	95.53	83.13	74.61	71.56	65.27

LATA AC	1769141	2496777	2860069	3806780	4761750	5968232
\$000/mi	34	49	56	74	93	116
\$/cct-mi	.009	.008	.007	.007	.007	.006
\$/cct	310.12	262.61	250.59	233.48	224.65	218.34

TOTAL AC	2887363	3633483	4047478	5329314	6660107	8201182
\$000/mi	45	56	63	83	103	127
\$/cct-mi	.015	.011	.010	.009	.009	.009
\$/cct	224.80	169.74	157.51	145.17	139.56	133.26

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EXHIBIT 6.100: 15 NODE NETWORK - COMBINED COST SUMMARY

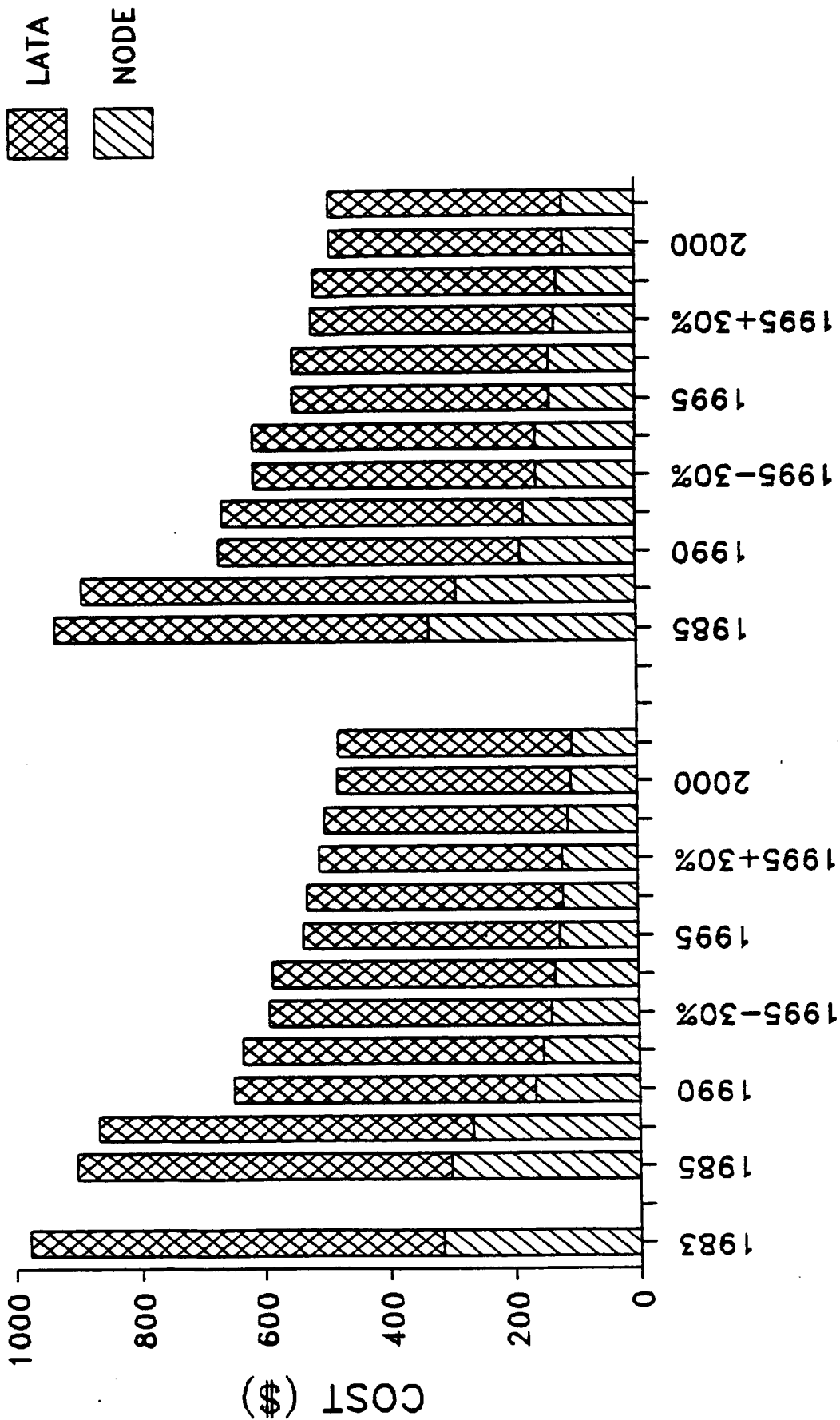
Page 4 of 4

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

96f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
NODE FC							
\$000/mi	2059501	2133990	2266555	2801268	3323853	3933775	
\$/cct-mi	155	161	171	211	251	297	
\$/cct	.50	.31	.28	.24	.22	.20	
	288.47	179.34	158.68	137.28	125.30	114.99	
LATA FC							
\$000/mi	3428162	4574456	5154434	6679560	8224555	10182780	
\$/cct-mi	67	89	100	130	160	198	
\$/cct	.018	.014	.013	.012	.011	.011	
	600.94	481.13	451.61	409.67	388.02	372.52	
TOTAL FC							
\$000/mi	5487663	6708445	7420989	9480828	11548408	14116555	
\$/cct-mi	85	104	115	147	179	219	
\$/cct	.028	.020	.019	.017	.016	.015	
	427.26	313.38	288.79	258.26	241.99	229.37	
NODE AC							
\$000/mi	982533	1109496	1197157	1532550	1860336	2244475	
\$/cct-mi	74	84	90	116	140	169	
\$/cct	.24	.16	.15	.13	.12	.11	
	137.62	93.24	83.81	75.10	70.13	65.61	
LATA AC							
\$000/mi	1769141	2496777	2860069	3806780	4761750	5968232	
\$/cct-mi	34	49	56	74	93	116	
\$/cct	.009	.008	.007	.007	.007	.006	
	310.12	262.61	250.59	233.48	224.65	218.34	
TOTAL AC							
\$000/mi	2751674	3606273	4057225	5339330	6622086	8212707	
\$/cct-mi	43	56	63	83	103	127	
\$/cct	.014	.011	.010	.009	.009	.009	
	214.24	168.47	157.89	145.44	138.76	133.45	

EXHIBIT 6.100A: 15 NODE NETWORK - COMBINE

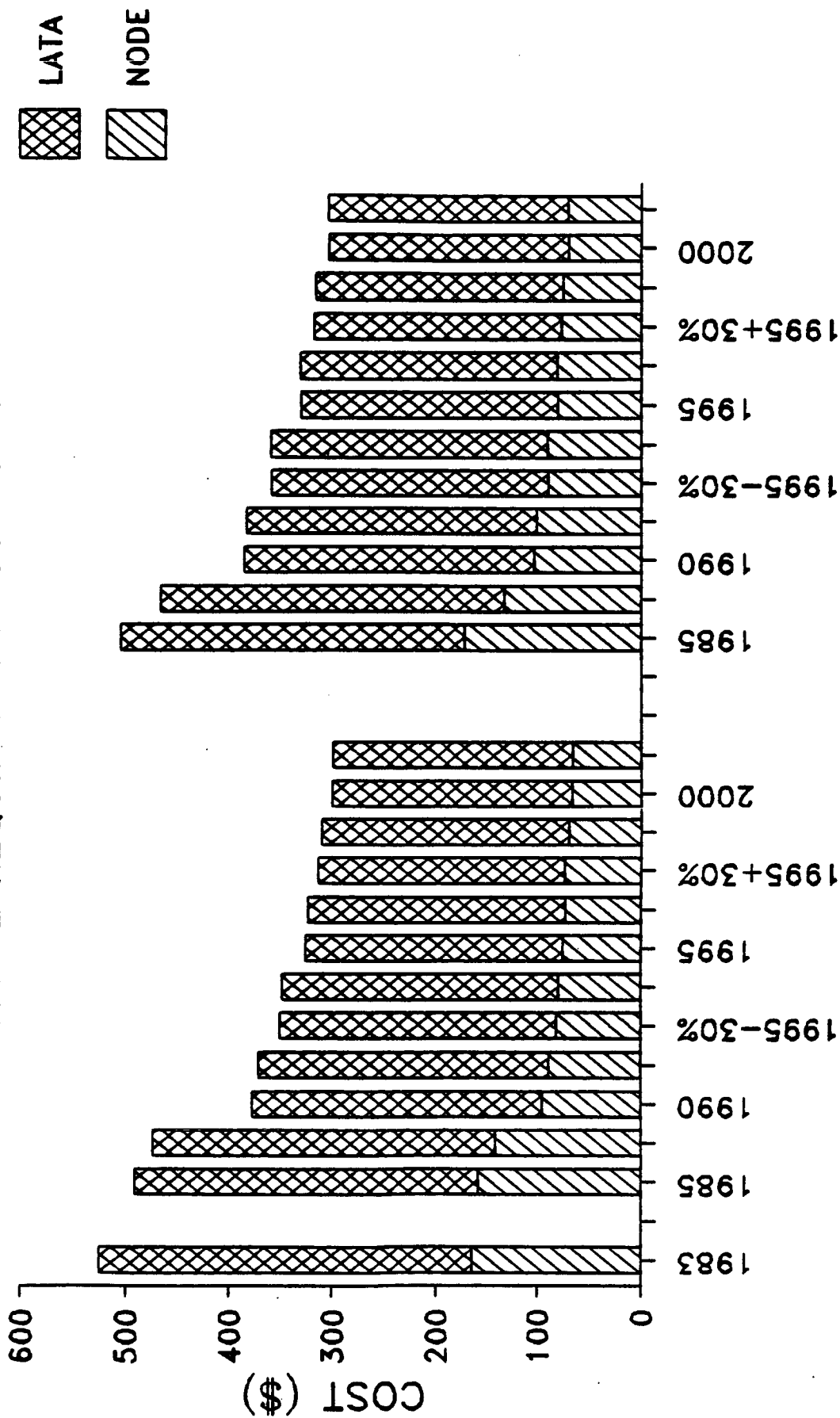
FIRST COST PER CIRCUIT



24f/96f FO CABLE

EXHIBIT 6.100B: 15 NODE NETWORK - COMBINE

REVENUE REQUIREMENTS PER CIRCUIT



24f/48f FO CABLE

24f/96f FO CABLE

EXHIBIT 6.101: 15 NODE NETWORK - REVENUE REQUIREMENTS SUMMARY

Node Network: 48f or 96f FO Cable, various transmission rates
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC 2668829							
Erlangs	1514561	1825479	3042466	3652293	5217561	6782830	8747088

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2677033	3025883	3807321	4229171	5606560	7027678	8639536
\$000/mi	41	47	59	65	87	109	134
\$/cct-mi	.016	.015	.012	.011	.010	.010	.009
\$/cct	251.22	235.59	177.86	164.58	152.72	147.26	140.38
\$/minute	.008	.007	.005	.005	.005	.004	.004

48f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2903869	3733398	4194420	5558918	6925668	8617724	
\$000/mi	45	58	65	86	107	133	
\$/cct-mi	.015	.011	.011	.010	.009	.009	
\$/cct	226.09	174.40	163.22	151.43	145.12	140.03	
\$/minute	.007	.005	.005	.005	.004	.004	

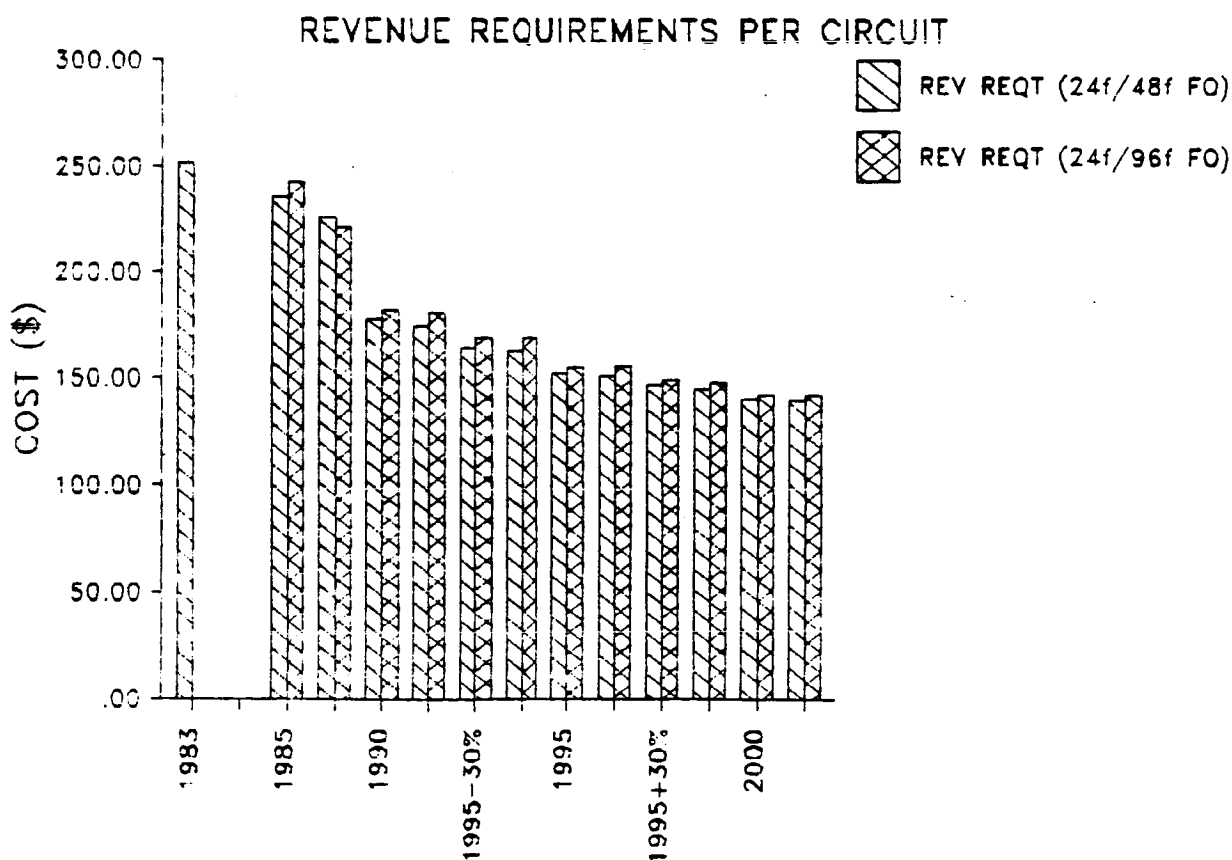
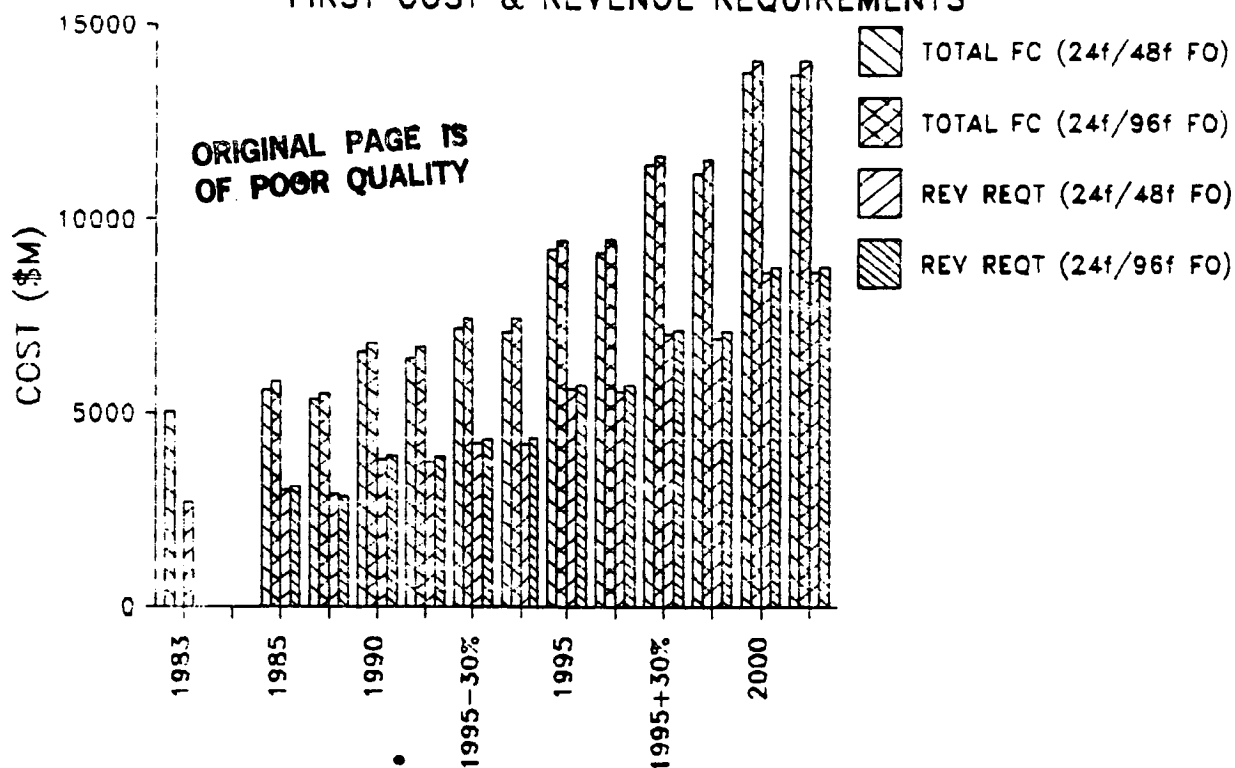
96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	3119202	3904680	4343696	5707987	7126033	8765109	
\$000/mi	48	60	67	88	110	136	
\$/cct-mi	.016	.012	.011	.010	.010	.009	
\$/cct	242.85	182.41	169.03	155.49	149.32	142.42	
\$/minute	.007	.005	.005	.005	.004	.004	

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2971181	3874611	4354065	5718563	7084022	8777370	
\$000/mi	46	60	67	89	110	136	
\$/cct-mi	.015	.012	.011	.010	.010	.009	
\$/cct	231.33	181.00	169.44	155.78	148.44	142.62	
\$/minute	.007	.005	.005	.005	.004	.004	

EXHIBIT 6.101A: 15 NODE NETWORK—FINANCIAL FIRST COST & REVENUE REQUIREMENTS



YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

48: FC CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps							
NODE FC	1989669	2278865	2170471	2135220	2811564	3578897	4023012
\$000/mi	142	162	155	152	200	255	287
\$/cct-mi	.56	.54	.31	.25	.23	.23	.20
\$/cct	293.65	279.05	159.46	130.68	120.45	117.94	102.81
LATA FC	3017933	3324761	4546538	5161822	6769289	8395837	10443073
\$000/mi	66	72	99	112	147	183	227
\$/cct-mi	.020	.018	.015	.014	.013	.013	.012
\$/cct	601.24	549.55	450.90	426.44	391.47	373.49	360.24
TOTAL FC	5007602	5603626	6717009	7297041	9580853	11974734	14466085
\$000/mi	84	93	112	122	160	200	241
\$/cct-mi	.033	.030	.022	.020	.018	.017	.016
\$/cct	424.55	394.16	283.49	256.54	235.79	226.69	212.36
NODE AC	950712	1097392	1154926	1179022	1587174	2031776	2369016
\$000/mi	68	78	82	84	113	145	169
\$/cct-mi	.27	.26	.16	.14	.13	.13	.12
\$/cct	140.31	134.38	84.85	72.16	68.00	66.96	60.54
LATA AC	1554212	1745510	2520314	2905087	3903120	4909235	6174470
\$000/mi	34	38	55	63	85	107	134
\$/cct-mi	.010	.010	.008	.008	.008	.007	.007
\$/cct	309.63	288.52	249.95	240.00	225.72	218.39	212.99
TOTAL AC	2504924	2842901	3675240	4084109	5490293	6941011	8543485
\$000/mi	42	47	61	68	92	116	143
\$/cct-mi	.016	.015	.012	.011	.010	.010	.010
\$/cct	212.37	199.97	155.11	143.59	135.12	131.40	125.42

EXHIBIT 6.102: 17 NODE NETWORK - COMBINED COST SUMMARY

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YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

48F FC CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
NODE FC							
\$000/mi	2005936	1975331	2116704	2719614	3333133	4026489	
\$/cct-mi	143	141	151	194	238	287	
\$/cct	.47	.28	.25	.22	.21	.20	
LATA FC							
\$000/mi	3324761	4546538	5161822	6769289	8395837	10443073	
\$/cct-mi	72	99	112	147	183	227	
\$/cct	.018	.015	.014	.013	.013	.012	
TOTAL FC							
\$000/mi	5330697	6521869	7278526	9488903	11728970	14469562	
\$/cct-mi	89	109	121	158	196	241	
\$/cct	.029	.021	.020	.018	.017	.016	
NODE AC							
\$000/mi	976125	1078205	1175331	1553500	1935629	2374864	
\$/cct-mi	70	77	84	111	138	169	
\$/cct	.23	.15	.14	.13	.12	.12	
LATA AC							
\$000/mi	1745510	2520314	2905087	3903120	4909235	6174470	
\$/cct-mi	38	55	63	85	107	134	
\$/cct	.010	.008	.008	.008	.007	.007	
TOTAL AC							
\$000/mi	2721635	3598520	4080419	5456620	6844864	8549334	
\$/cct-mi	45	60	68	91	114	143	
\$/cct	.015	.012	.011	.010	.010	.010	
TOTAL							
\$000/mi	191.44	151.87	143.46	134.29	129.58	125.50	

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
DATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

96 FC CA	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps
NODE FC						
\$000/mi	2470621	2362409	2481066	3102895	3720164	4387848
\$/cct-mi	176	168	177	221	265	313
\$/cct	.56	.33	.29	.26	.24	.22
	302.53	173.57	151.85	132.93	122.60	112.13
DATA FC						
\$000/mi	3324761	4546538	5161822	6769289	8395837	10443073
\$/cct-mi	72	99	112	147	183	227
\$/cct	.016	.015	.014	.013	.013	.012
	549.55	450.90	426.44	391.47	373.49	360.24
TOTAL FC						
\$000/mi	5795383	6908947	7642888	9872184	12116001	14830921
\$/cct-mi	97	115	127	165	202	247
\$/cct	.031	.022	.021	.019	.018	.017
	407.65	291.59	268.70	242.96	229.37	217.71
NODE AC						
\$000/mi	1174701	1232306	1318455	1704627	2088729	2516104
\$/cct-mi	84	88	94	122	149	179
\$/cct	.28	.17	.16	.14	.13	.12
	143.84	90.54	80.69	73.03	68.83	64.30
DATA AC						
\$000/mi	1745510	2520314	2905087	3903120	4909235	6174470
\$/cct-mi	38	55	63	85	107	134
\$/cct	.010	.008	.008	.008	.007	.007
	288.51	249.95	240.00	225.72	218.39	212.99
TOTAL AC						
\$000/mi	2920210	3752622	4223542	5607747	6997964	8690573
\$/cct-mi	49	63	70	94	117	145
\$/cct	.016	.012	.011	.011	.010	.010
	205.41	158.38	148.49	138.01	132.48	127.58

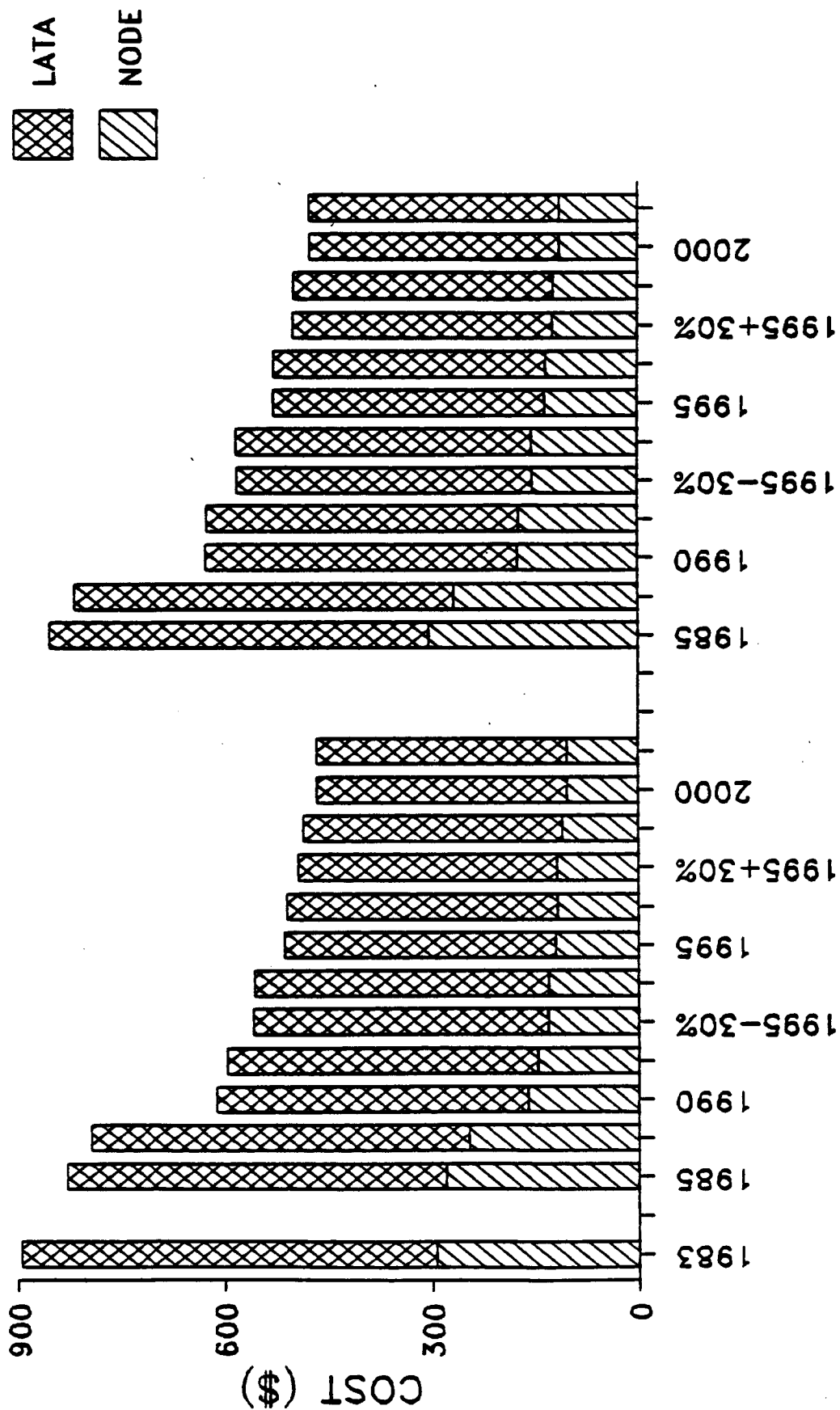
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YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

96f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
NODE FC							
\$000/mi	2172576	2340166	2497908	3100818	3702310	4407693	
\$/cct-mi	155	167	178	221	264	314	
\$/cct	.51	.33	.29	.26	.23	.22	
	266.03	171.93	152.88	132.84	122.01	112.64	
LATA FC							
\$000/mi	3324761	4546538	5161822	6769289	8395837	10443073	
\$/cct-mi	72	99	112	147	183	227	
\$/cct	.018	.015	.014	.013	.013	.012	
	549.55	450.90	426.44	391.47	373.49	360.24	
TOTAL FC							
\$000/mi	5497338	6886704	7659730	9870107	12098147	14850766	
\$/cct-mi	92	115	128	165	202	248	
\$/cct	.030	.022	.021	.019	.018	.017	
	386.69	290.65	269.30	242.90	229.03	218.01	
NODE AC							
\$000/mi	1043309	1225294	1329019	1707188	2084468	2528551	
\$/cct-mi	74	87	95	122	149	180	
\$/cct	.25	.17	.16	.14	.13	.12	
	127.75	90.02	81.34	73.14	68.69	64.62	
LATA AC							
\$000/mi	1745510	2520314	2905087	3903120	4909235	6174470	
\$/cct-mi	38	55	63	85	107	134	
\$/cct	.010	.008	.008	.008	.007	.007	
	288.52	249.95	240.00	225.72	218.39	212.99	
TOTAL AC							
\$000/mi	2788818	3745608	4234106	5610307	6993703	8703021	
\$/cct-mi	47	62	71	94	117	145	
\$/cct	.015	.012	.011	.011	.010	.010	
	196.17	158.08	148.86	138.07	132.40	127.76	

EXHIBIT 6.102A: 17 NODE NETWORK - COMBINE

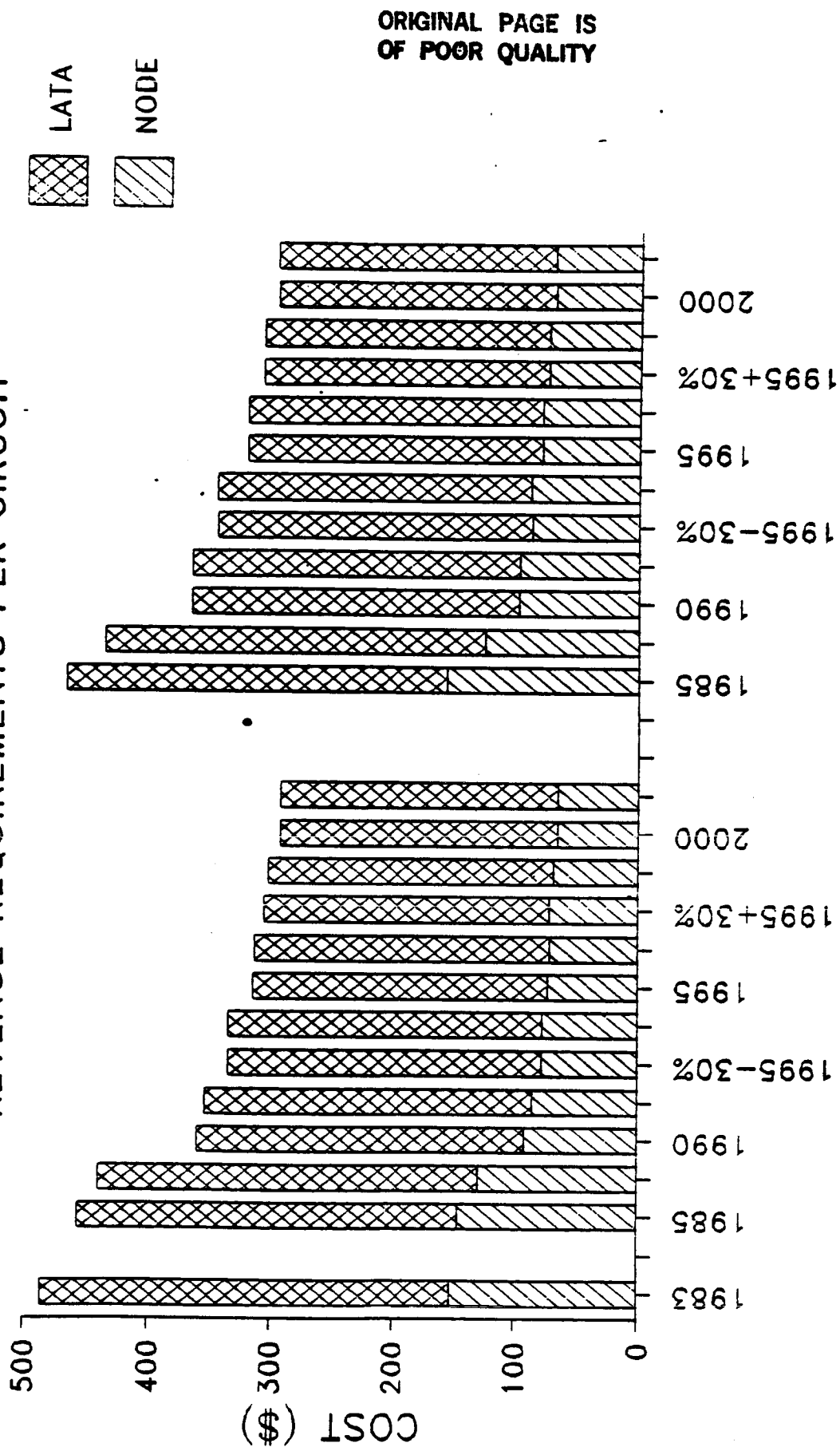
FIRST COST PER CIRCUIT



24f/96f FO CABLE

24f/48f FO CABLE

EXHIBIT 6.102B: 17 NODE NETWORK - COMBINE REVENUE REQUIREMENTS PER CIRCUIT



24f/96f FO CABLE

24f/48f FO CABLE

EXHIBIT 6.103: 17 NODE NETWORK - COMBINED EQUIPMENT COSTS (1983)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	1606250
Total VF Circuits	2677084
Circuit Miles (M)	13970

NODE NETWORK: 25 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 25 mi Repeater Spacing

405 mbps Dig FO Sys
 FC(\$000) RR(\$000)

24f/48f FO Cable	2664338	1180737
FO Trans/Rcvr	73008	48714
FO Line Repeater	417360	278479
Bldng/CEV, Power	171790	75598
T1 & M13 Multiplex	1681105	1121700

EXHIBIT 6.103A: 17 NODE NETWORK (1983)

COMBINED EQUIPMENT COSTS

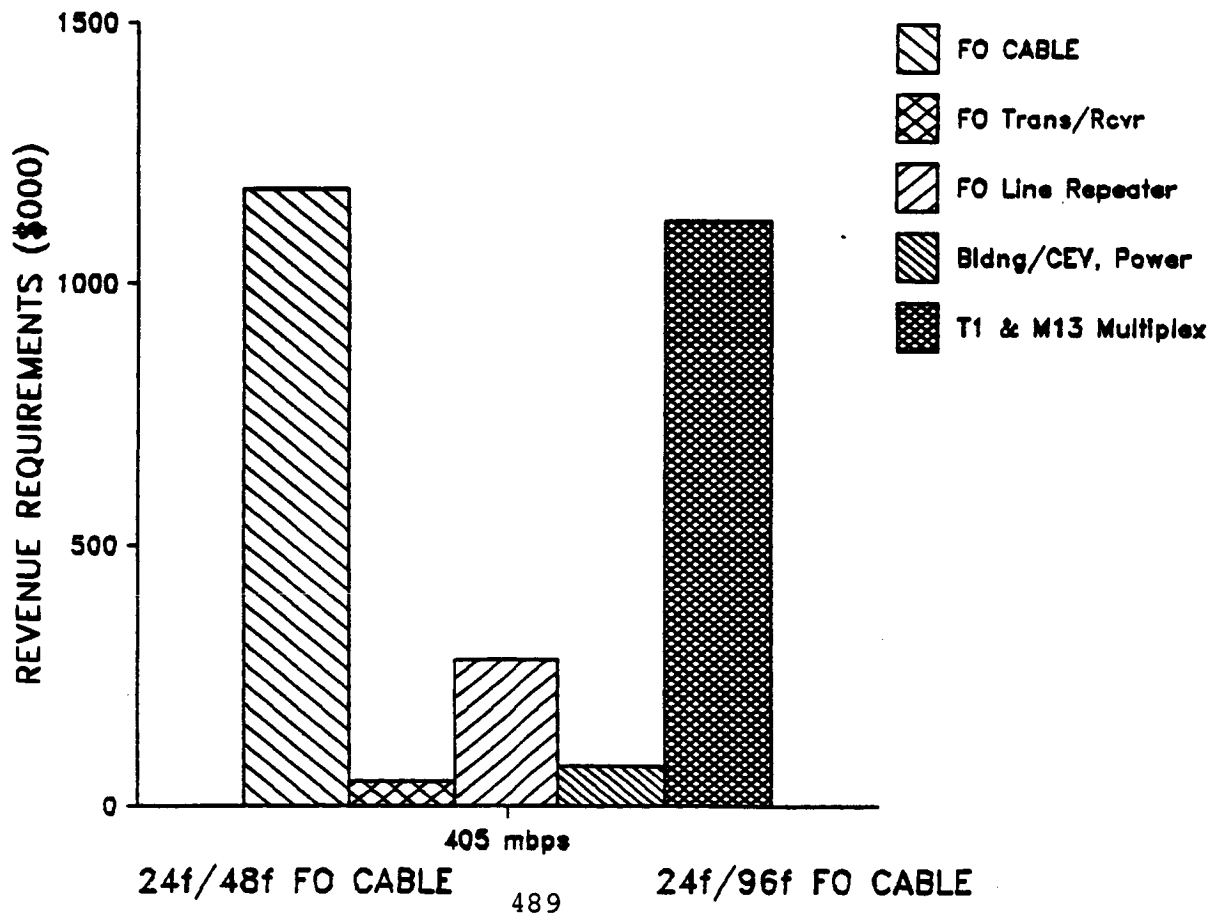
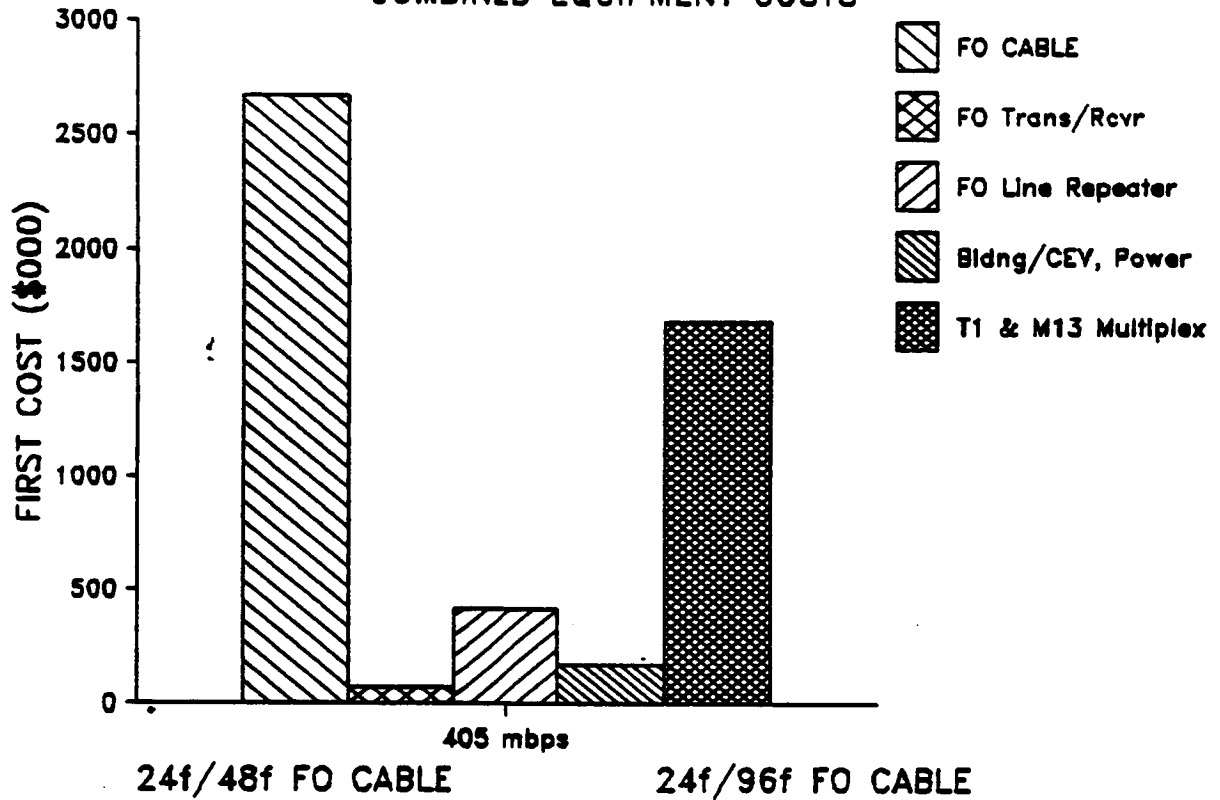


EXHIBIT 6.104: 17 NODE NETWORK - COMBINED EQUIPMENT COSTS (1985)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	1935992
Total VF Circuits	3226653
Circuit Miles (M)	16838

NODE NETWORK: 25 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 25 mi Repeater Spacing

	405 mbps Dig FO Sys FC(\$000) RR(\$000)		565 mbps Dig FO Sy FC(\$000) RR(\$000)	
24f/48f FO Cable	2824432	1251684	2601626	1152945
FO Trans/Rcvr	86292	57577	79999	53379
FO Line Repeater	495372	330532	451542	301286
Bldng/CEV, Power	171790	75598	171790	75598
T1 & M13 Multiplex	2025740	1351654	2025740	1351654

	405 mbps Dig FO Sys FC(\$000) RR(\$000)		565 mbps Dig FO Sy FC(\$000) RR(\$000)	
24f/96f FO Cable	3016188	1336664	2768266	1114878
FO Trans/Rcvr	86292	57577	79999	53379
FO Line Repeater	495372	330532	451542	301286
Bldng/CEV, Power	171790	75598	171790	75598
T1 & M13 Multiplex	2025740	1351654	2025740	1351654

EXHIBIT 6.104A: 17 NODE NETWORK (1985)

COMBINED EQUIPMENT COSTS

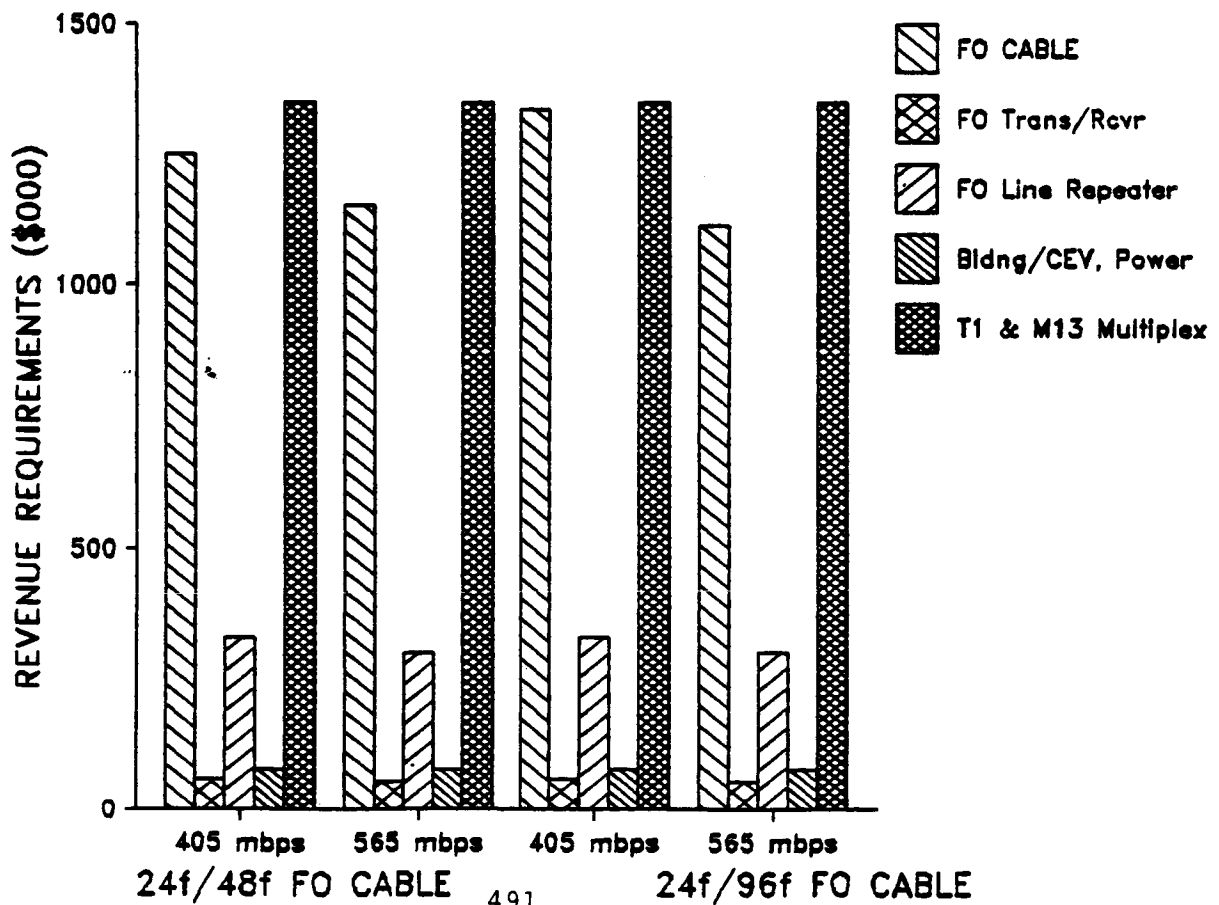
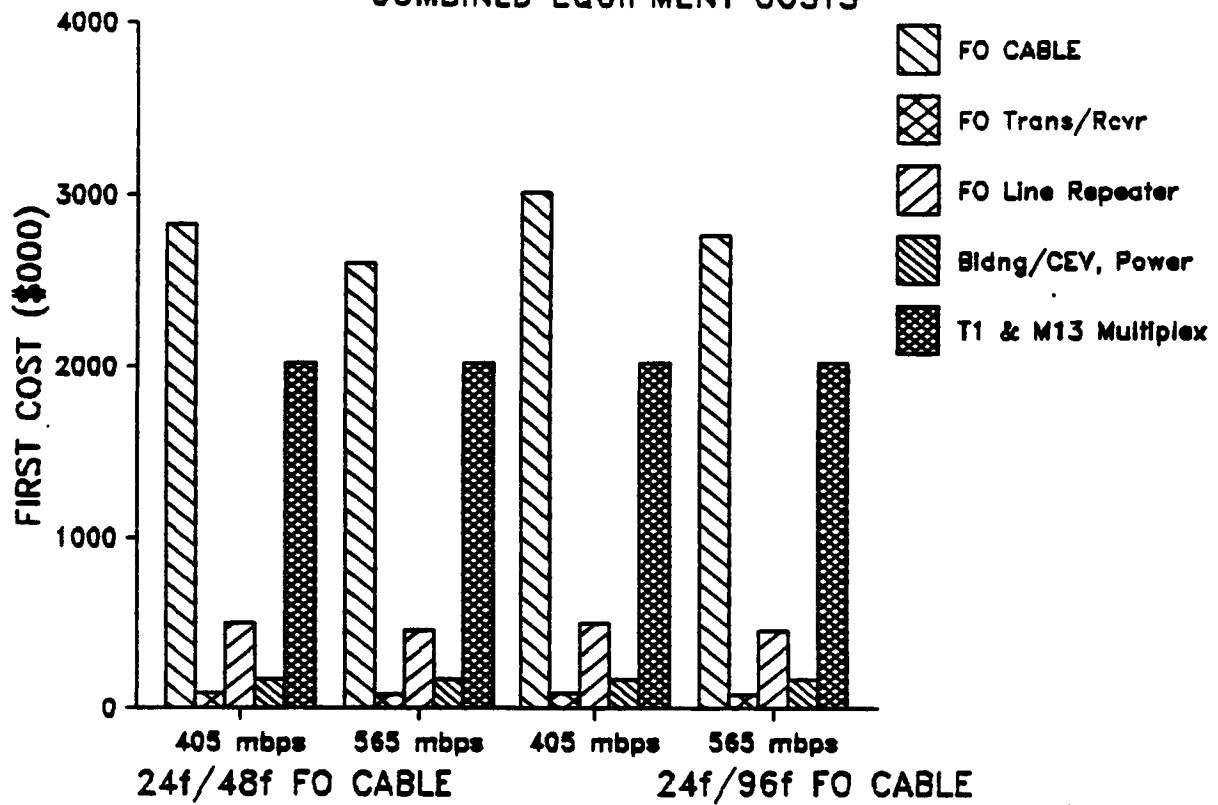


EXHIBIT 6.105: 17 NODE NETWORK - COMBINED EQUIPMENT COSTS (1990)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	3226653
Total VF Circuits	5377755
Circuit Miles (M)	28063

NODE NETWORK: 50 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 50 mi Repeater Spacing

	810 mbps Dig FO Sys FC(\$000) RR(\$000)		1.7 gbps Dig FO Sy FC(\$000) RR(\$000)	
24f/48f FO Cable	2301781	1020065	2097926	929723
FO Trans/Rcvr	68490	45699	70002	46708
FO Line Repeater	198465	132424	205668	137230
Bldng/CEV, Power	97555	42933	97555	42933
T1 & M13 Multiplex	4050718	2702800	4050718	2702800

	810 mbps Dig FO Sys FC(\$000) RR(\$000)		1.7 gbps Dig FO Sy FC(\$000) RR(\$000)	
24f/96f FO Cable	2493719	1105124	2462761	1091405
FO Trans/Rcvr	68490	45699	70002	46708
FO Line Repeater	198465	132424	205668	137230
Bldng/CEV, Power	97555	42933	97555	42933
T1 & M13 Multiplex	4050718	2702800	4050718	2702800

EXHIBIT 6.105A: 17 NODE NETWORK (1990)

COMBINED EQUIPMENT COSTS

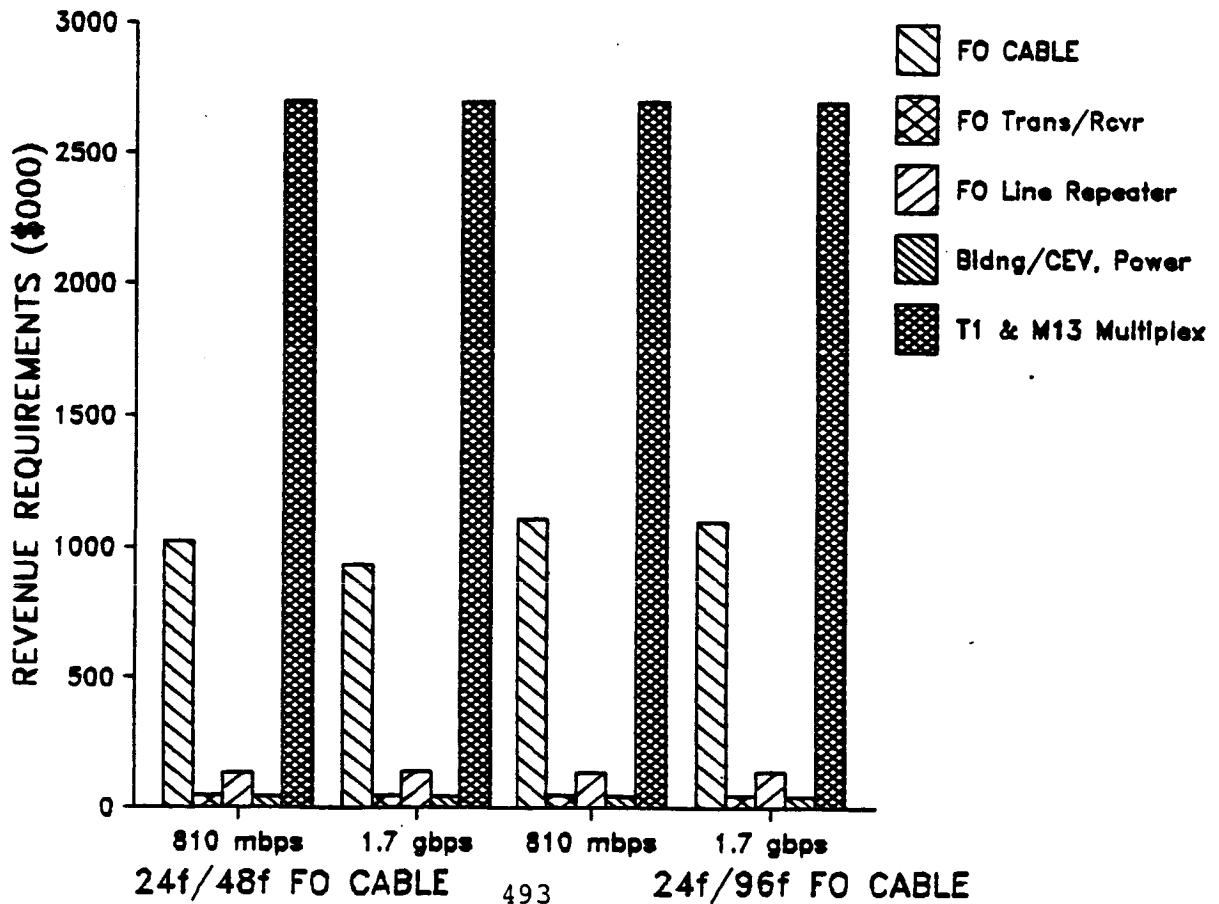
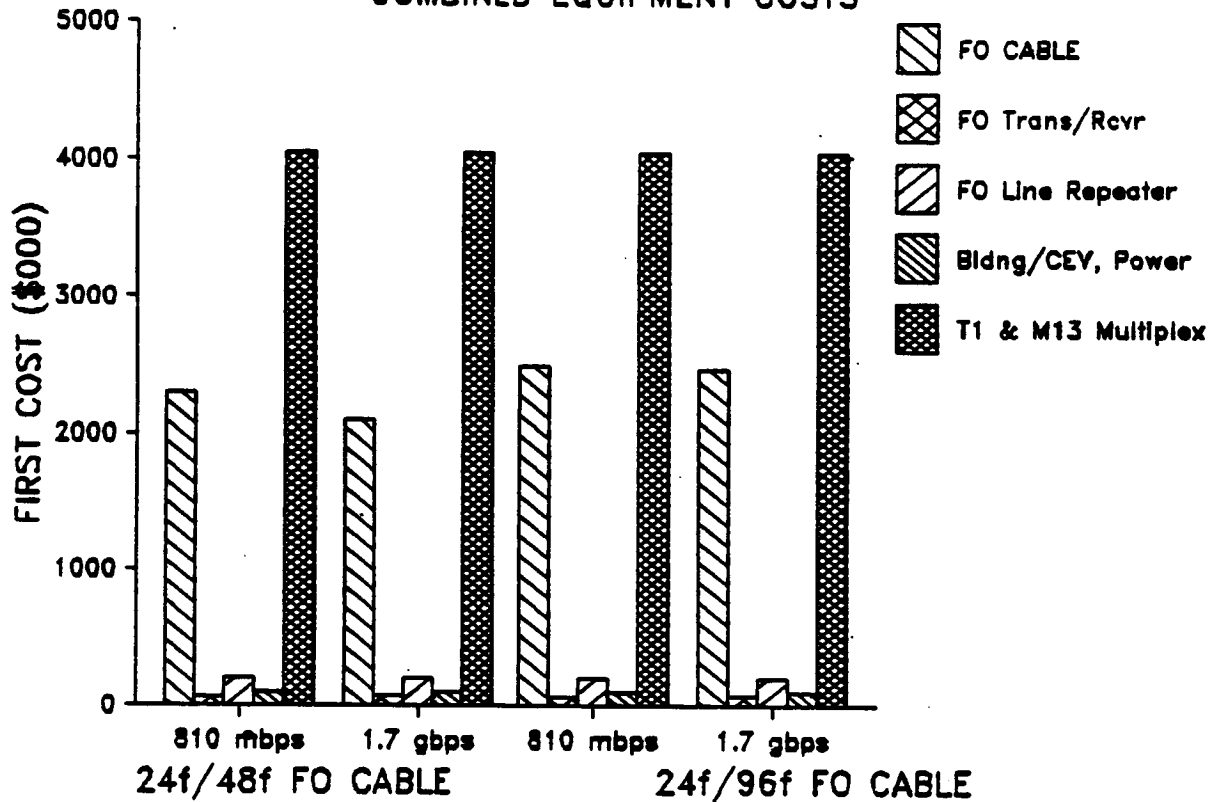


EXHIBIT 6.106: 17 NODE NETWORK - COMBINED EQUIPMENT COSTS (1995)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	7193455
Total VF Circuits	11989091
Circuit Miles (M)	58920

NODE NETWORK: 100 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 50 mi Repeater Spacing

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/48f FO Cable	2302525	1020394	2195413	972926
FO Trans/Rcvr	122238	81562	126963	84715
FO Line Repeater	229626	153216	240063	160180
Bldng/CEV, Power	76555	33704	76555	33704
T1 & M13 Multiplex	8476457	5655829	8476457	5655829

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/96f FO Cable	2593855	1149501	2576617	1141862
FO Trans/Rcvr	122238	81562	126963	84715
FO Line Repeater	229626	153216	240063	160180
Bldng/CEV, Power	76555	33704	76555	33704
T1 & M13 Multiplex	8476457	5655829	8476457	5655829

EXHIBIT 6.106A: 17 NODE NETWORK (1995)

COMBINED EQUIPMENT COSTS

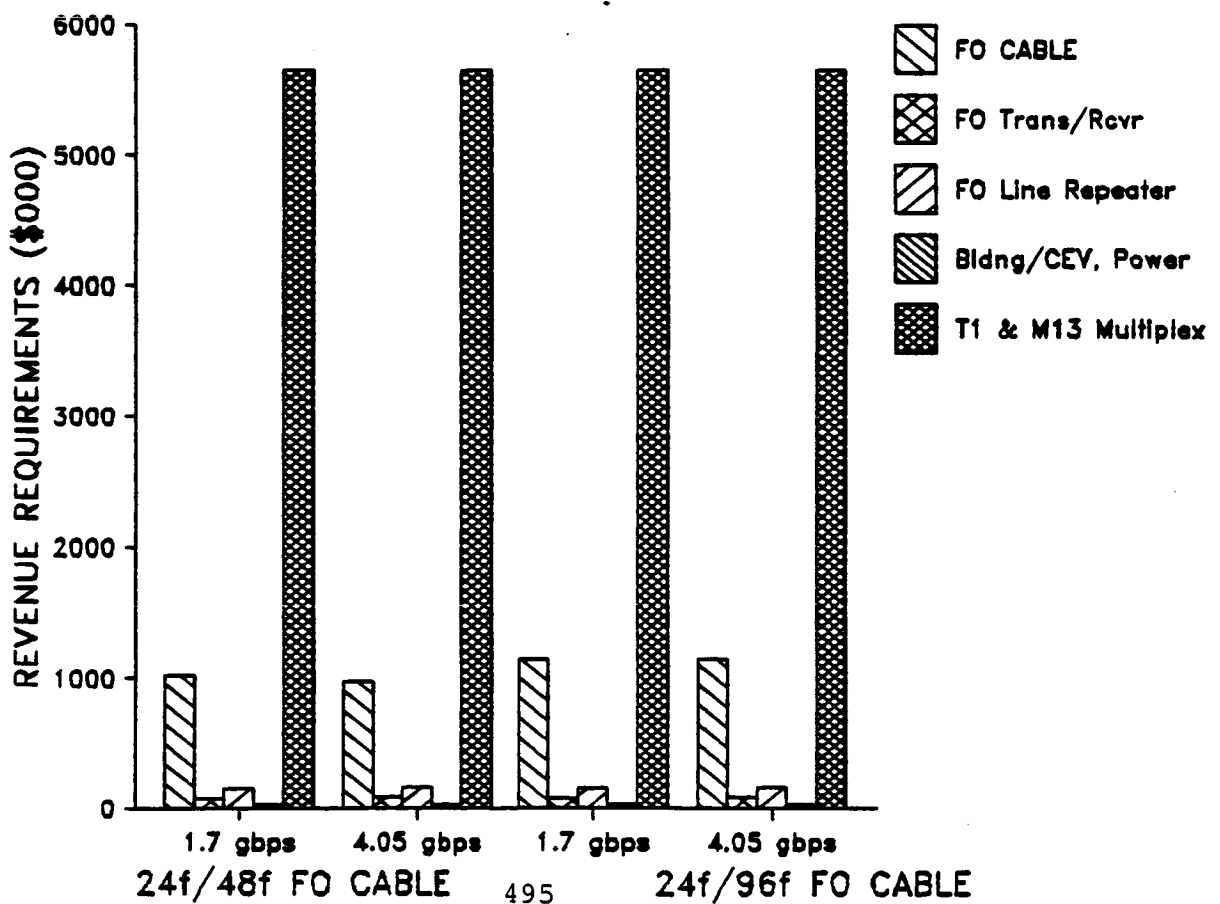
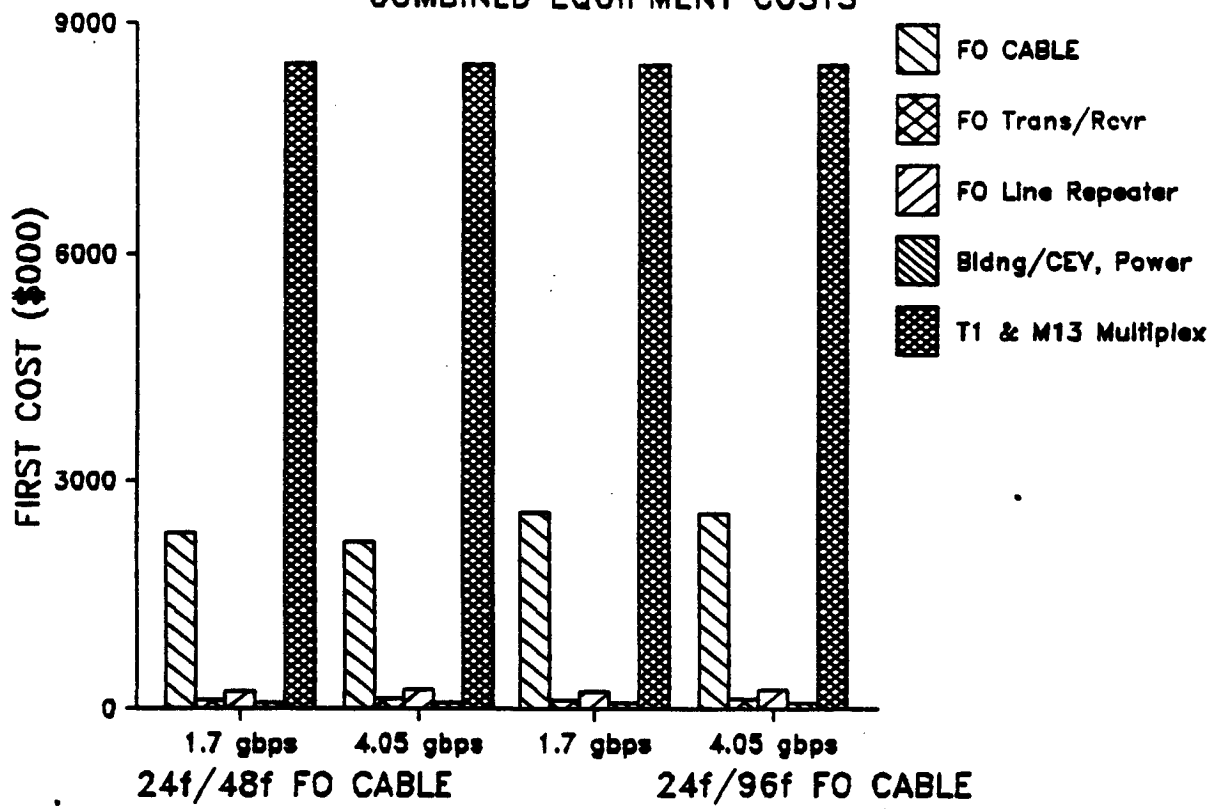


EXHIBIT 6.107: 17 NODE NETWORK - COMBINED EQUIPMENT COSTS (1995+30%)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	3873399
Total VF Circuits	6455665
Circuit Miles (M)	40972

NODE NETWORK: 100 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 50 mi Repeater Spacing

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/48f FO Cable	2357617	1044809	2098750	930089
FO Trans/Rcvr	121032	80757	124812	83280
FO Line Repeater	229392	153059	238716	159281
Bldng/CEV, Power	76555	33704	76555	33704
T1 & M13 Multiplex *	5956122	3974161	5956122	3974161

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/96f FO Cable	2498885	1107414	2467927	1093694
FO Trans/Rcvr	121032	80757	124812	83280
FO Line Repeater	229392	153059	238716	159281
Bldng/CEV, Power	76555	33704	76555	33704
T1 & M13 Multiplex	5956122	3974161	5956122	3974161

EXHIBIT 6.107A: 17 NODE NETWORK (1995+30%)

COMBINED EQUIPMENT COSTS

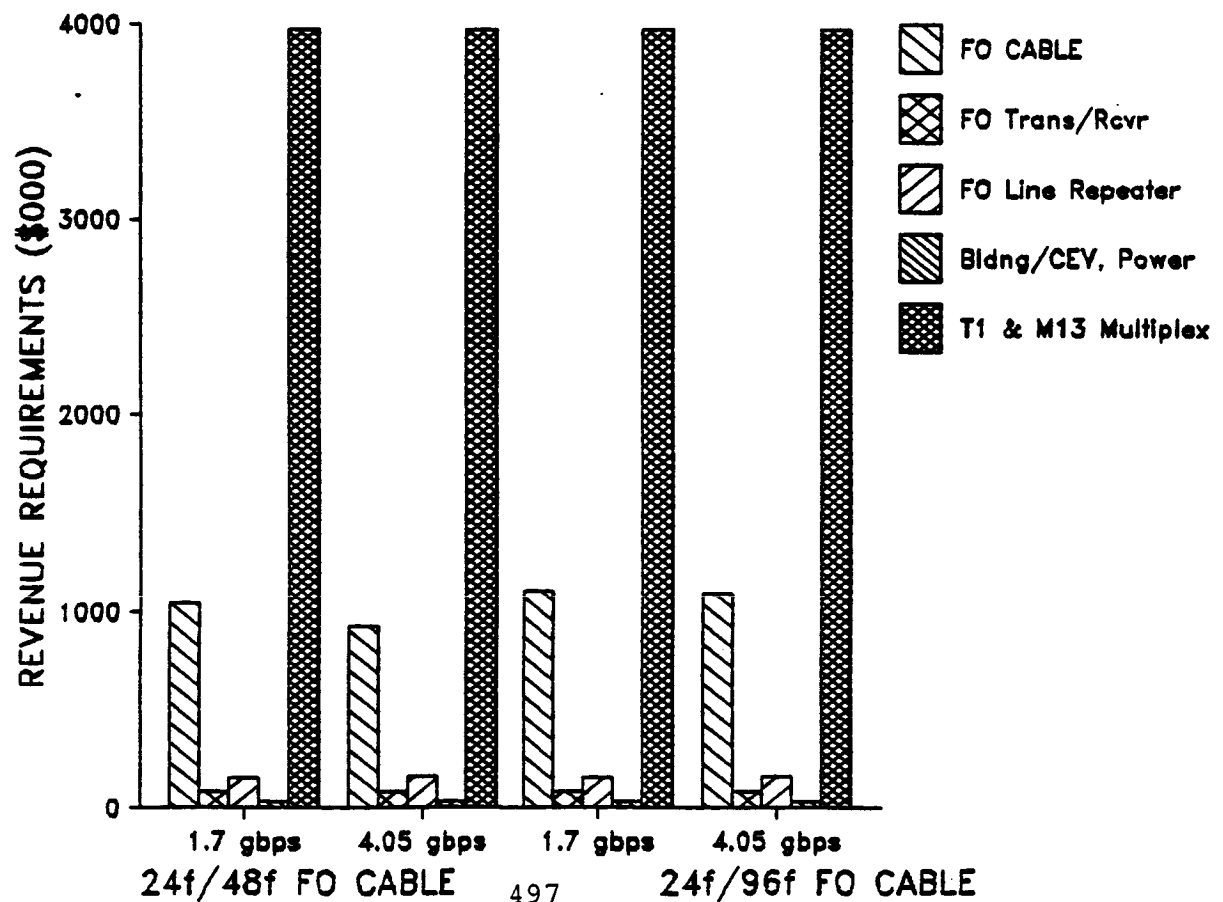
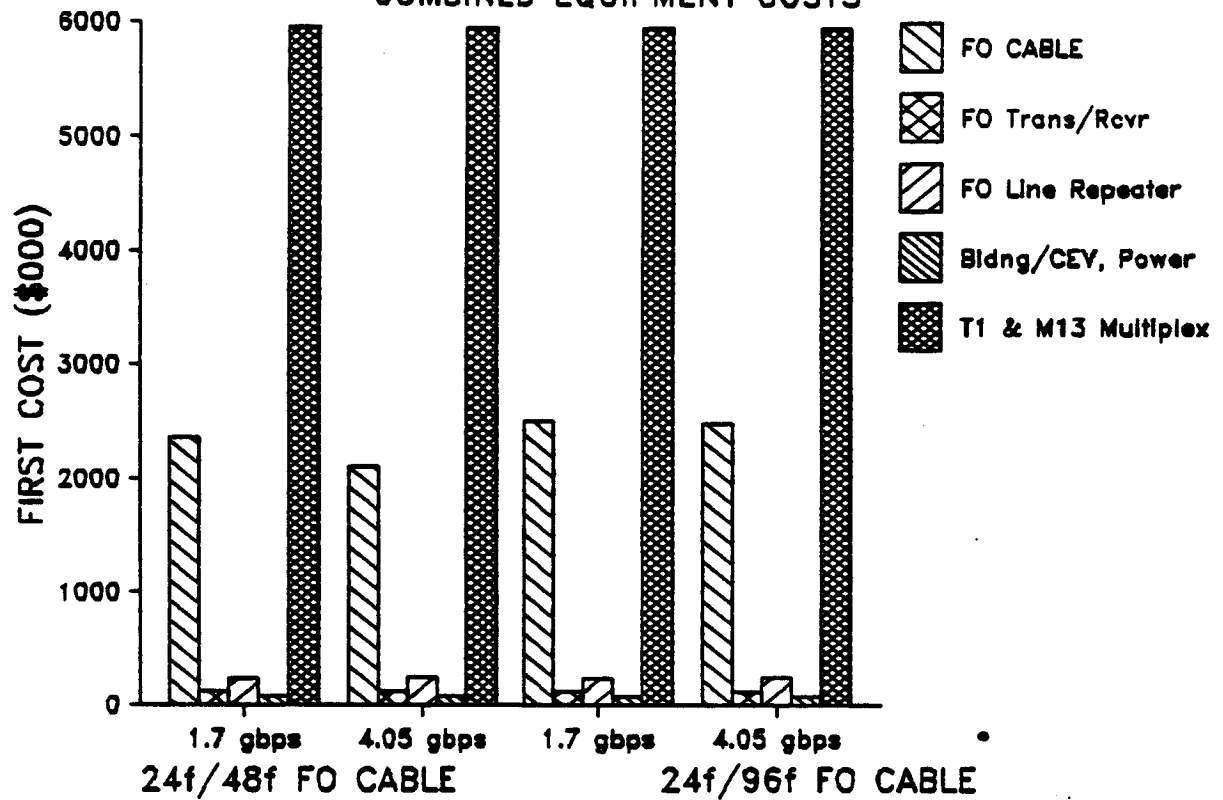


EXHIBIT 6.108: 17 NODE NETWORK - COMBINED EQUIPMENT COSTS (1995-30%)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	5533427
Total VF Circuits	9222378
Circuit Miles (M)	44482

NODE NETWORK: 100 mi Repeater Spacing
 LATA ACCESS: 405 mbps Line Rate, 50 mi Repeater Spacing

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/48f FO Cable	2167758	960670	2132400	945001
FO Trans/Rcvr	91944	61349	96921	64670
FO Line Repeater	173124	115515	184989	123432
Bldng/CEV, Power	76555	33704	76555	33704
T1 & M13 Multiplex	6395128	4267084	6395128	4267084

	1.7 gbps Dig FO Sys FC(\$000) RR(\$000)		4.05 gbps Dig FO S FC(\$000) RR(\$000)	
24f/96f FO Cable	2513604	1113937	2513604	1113937
FO Trans/Rcvr	91944	61349	96921	64670
FO Line Repeater	173124	115515	184989	123432
Bldng/CEV, Power	76555	33704	76555	33704
T1 & M13 Multiplex	6395128	4267084	6395128	4267084

EXHIBIT 6.108A: 17 NODE NETWORK (1995-30% COMBINED EQUIPMENT COSTS

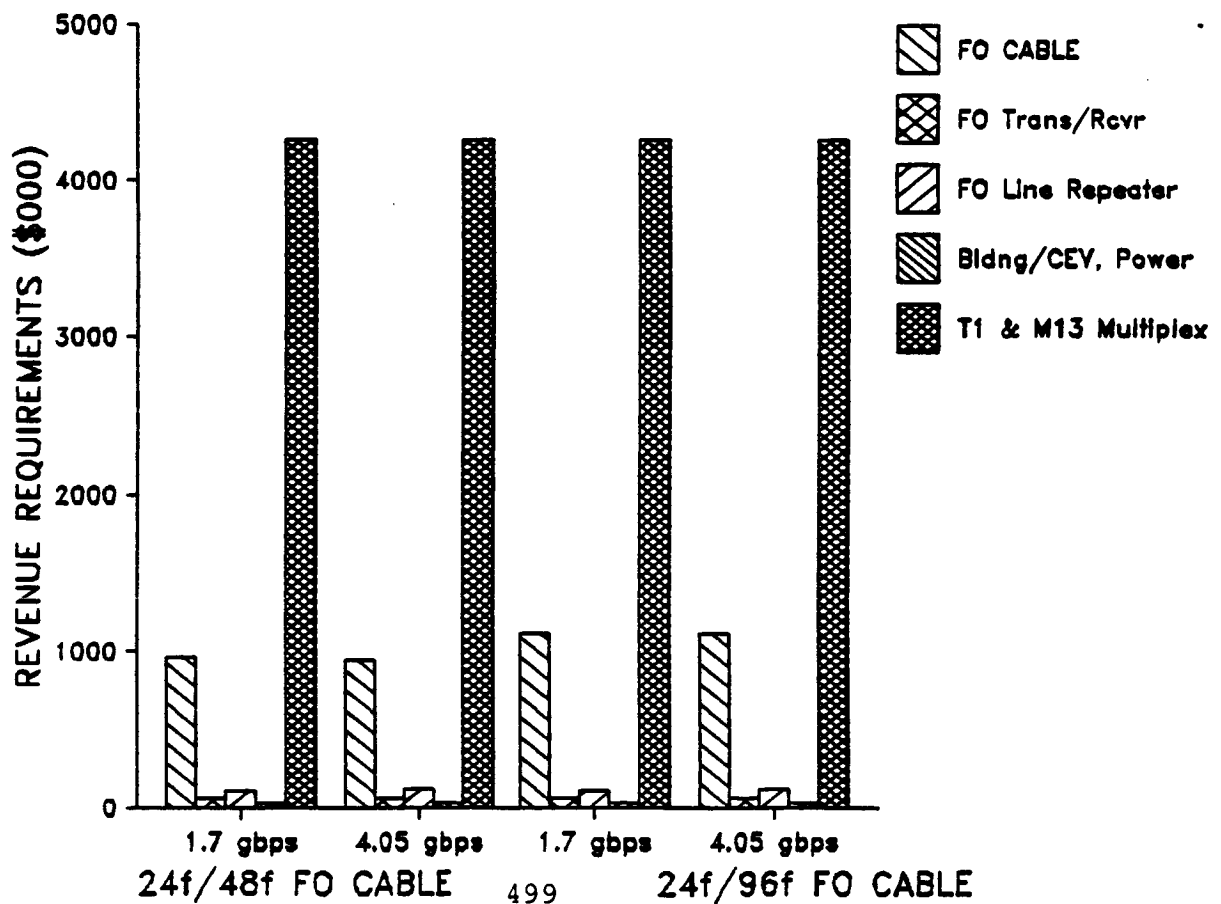
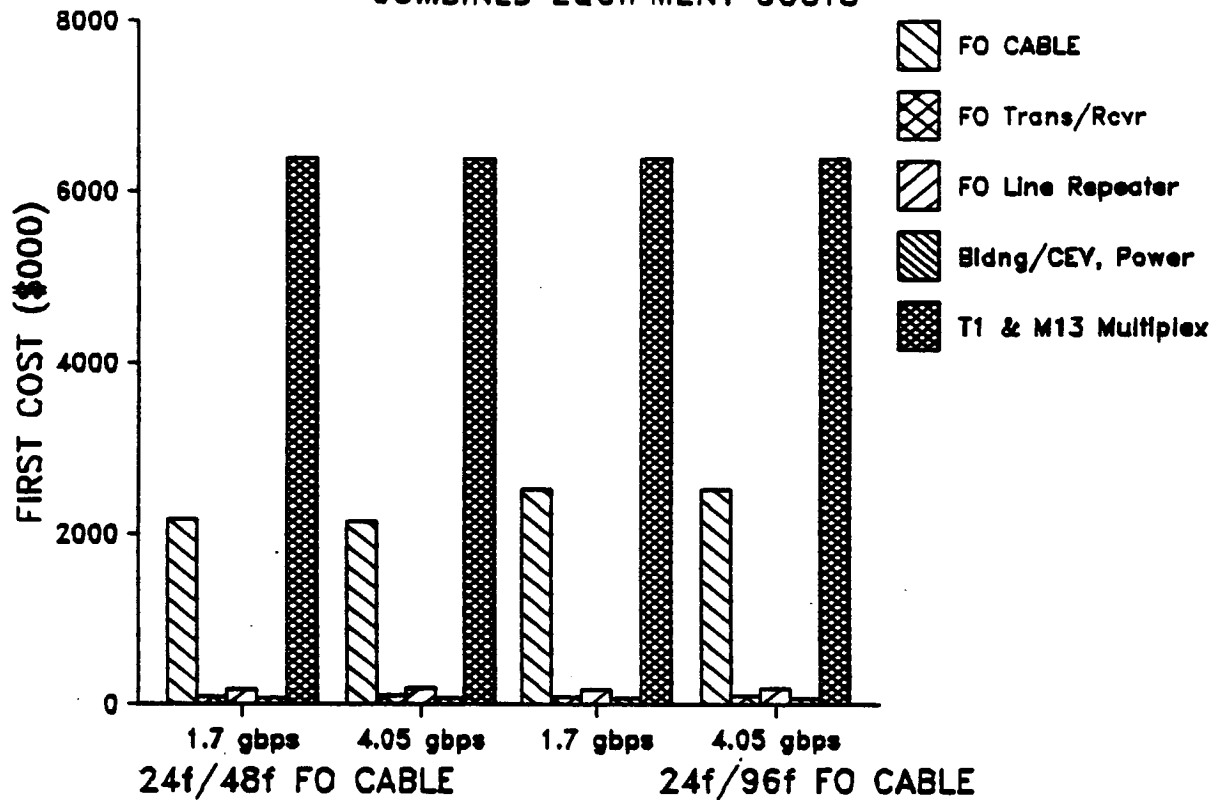


EXHIBIT 6.109: 17 NODE NETWORK - COMBINED EQUIPMENT COSTS (2000)

NODE NETWORK

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS

Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

Actual Traffic	9276627
Total VF Circuits	15461045
Circuit Miles (M)	80680

NODE NETWORK:	150 mi Repeater Spacing
LATA ACCESS:	405 mbps Line Rate, 50 mi Repeater Spacing

	4.05 gbps Dig FO Sys FC(\$000) RR(\$000)		8.1 gbps Dig FO Sy FC(\$000) RR(\$000)	
24f/48f FO Cable	2296008	1017506	2279640	1010252
FO Trans/Rcvr	185544	123802	193104	128847
FO Line Repeater	279831	186714	292116	194911
Bldng/CEV, Power	69355	30540	69355	30540
T1 & M13 Multiplex	11635347	7763566	11635347	7763566

	4.05 gbps Dig FO Sys FC(\$000) RR(\$000)		8.1 gbps Dig FO Sy FC(\$000) RR(\$000)	
24f/96f FO Cable	2660844	1179188	2660844	1179188
FO Trans/Rcvr	185544	123802	193104	128847
FO Line Repeater	279831	186714	292116	194911
Bldng/CEV, Power	69355	30540	69355	30540
T1 & M13 Multiplex	11635347	7763566	11635347	7763566

EXHIBIT 6.109A: 17 NODE NETWORK (2000)

COMBINED EQUIPMENT COSTS

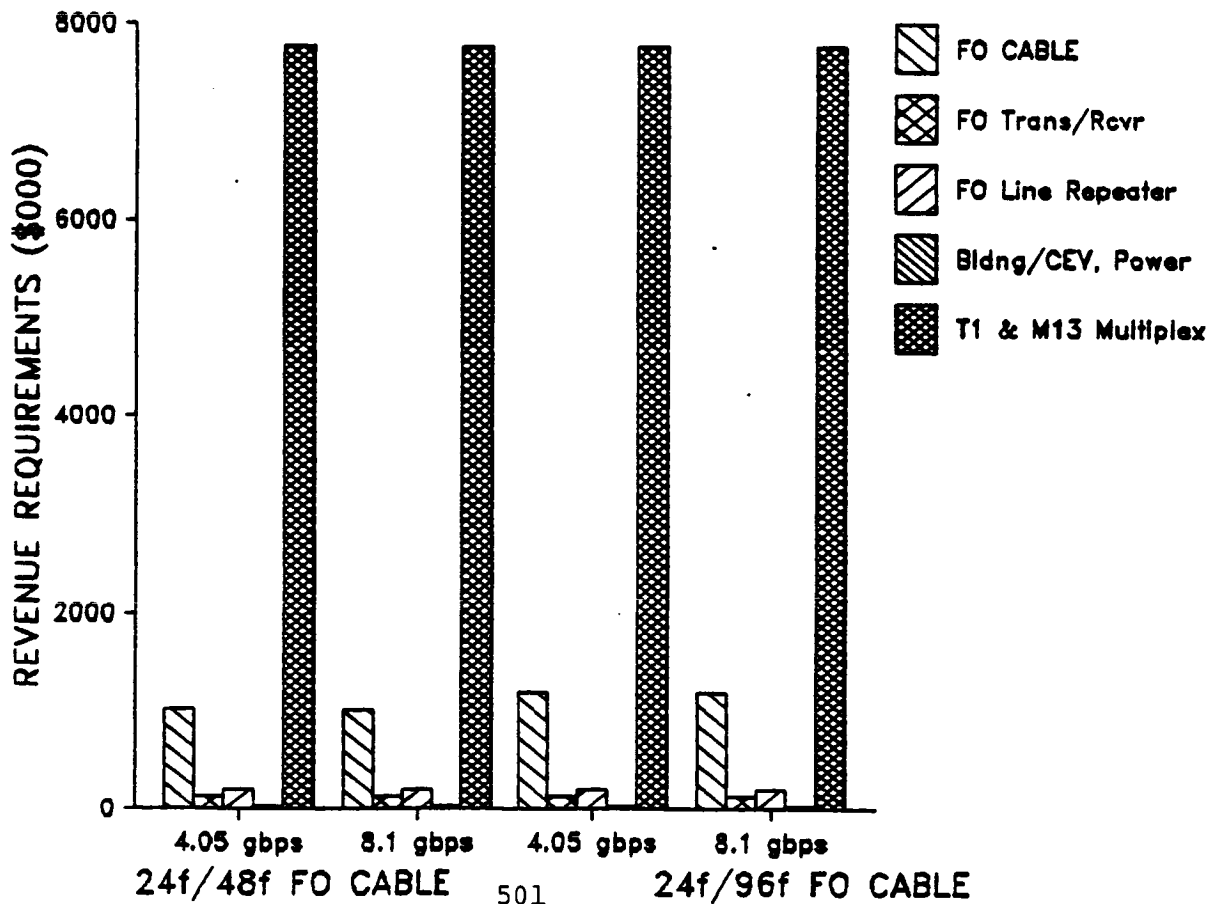
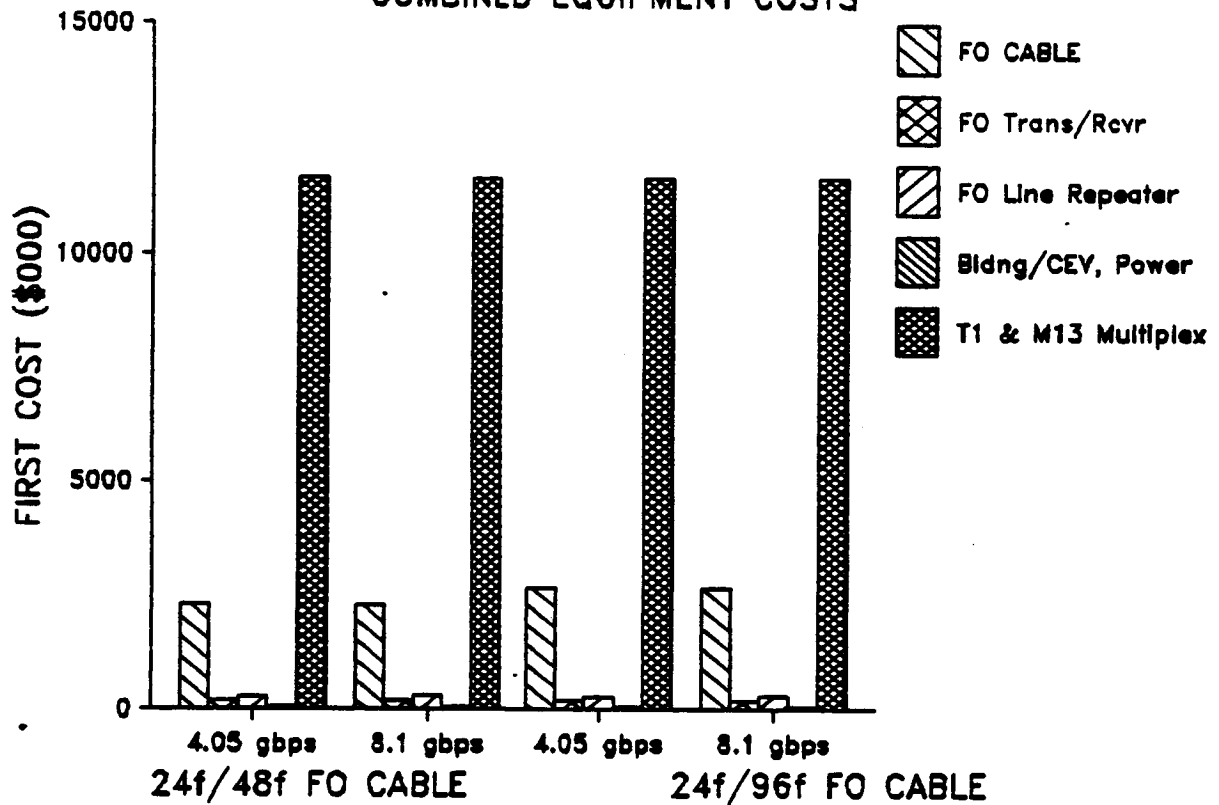


EXHIBIT 6.110: 17 NODE NETWORK - REVENUE REQUIREMENTS SUMMARY

Node Network: 48f or 96f FO Cable, various transmission rates
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC							
2830397							
Erlangs	1606250	1935991	3226652	3873398	5533426	7193453	9276626

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2705228	3067046	3943921	4375991	5873527	7420000	9122129
\$000/mi	45	51	66	73	98	124	152
\$/cct-mi	.018	.017	.013	.012	.011	.011	.010
\$/cct	229.35	215.74	166.45	153.85	144.55	140.47	133.91
\$/minute	.007	.007	.005	.005	.005	.004	.004

48f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2934863	3859394	4371560	5836176	7314023	9128116
\$000/mi	49	64	73	97	122	152
\$/cct-mi	.016	.013	.012	.011	.011	.010
\$/cct	206.44	162.88	153.69	143.63	138.46	134.00
\$/minute	.006	.005	.005	.005	.004	.004

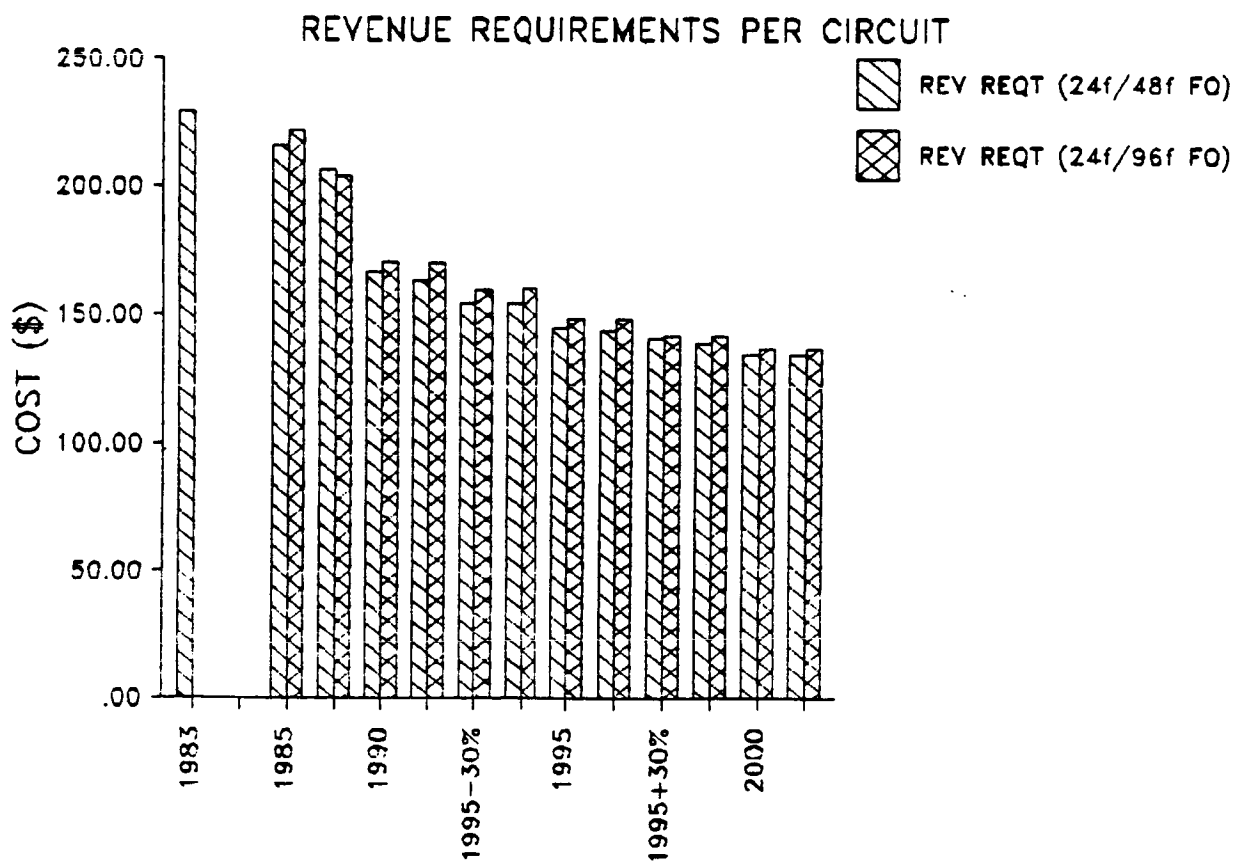
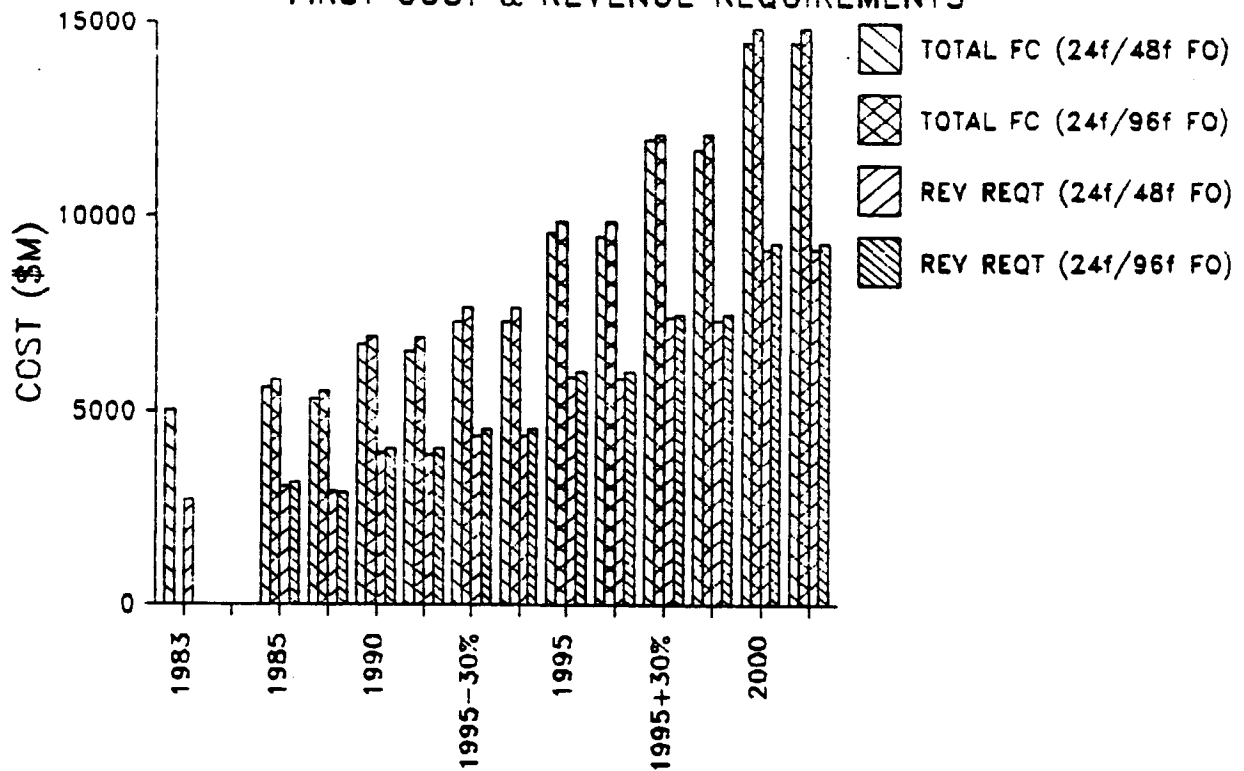
96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	3152026	4028980	4529257	6002634	7482604	9283810
\$000/mi	53	67	76	100	125	155
\$/cct-mi	.017	.013	.012	.011	.011	.010
\$/cct	221.71	170.04	159.24	147.73	141.65	136.28
\$/minute	.007	.005	.005	.005	.004	.004

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	3008712	4021076	4540495	6005112	7477629	9297052
\$000/mi	50	67	76	100	125	155
\$/cct-mi	.016	.013	.012	.011	.011	.011
\$/cct	211.63	169.71	159.63	147.79	141.56	136.48
\$/minute	.007	.005	.005	.005	.004	.004

EXHIBIT 6.110A: 17 NODE NETWORK—FINANCIAL FIRST COST & REVENUE REQUIREMENTS



YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

48F FD CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps							
NODE FC	2089695	2442229	2491691	2565748	3428650	4341812	5037374
\$000/mi	151	176	179	185	247	313	363
\$/cct-mi	.58	.57	.35	.30	.28	.27	.24
\$/cct	236.05	228.87	140.10	120.18	112.42	109.51	98.52
LATA FC	2927577	3229837	4464283	5076421	6680864	8291100	10354429
\$000/mi	68	75	104	118	156	193	241
\$/cct-mi	.023	.021	.018	.017	.015	.015	.014
\$/cct	566.45	518.49	430.00	407.31	375.23	358.21	346.90
TOTAL FC	5017270	5672066	6955974	7642169	10109514	12632911	15391803
\$000/mi	88	100	123	135	178	222	271
\$/cct-mi	.039	.036	.027	.024	.023	.022	.021
\$/cct	357.82	335.62	246.96	226.02	209.29	201.18	190.07
NODE AC	1016492	1193723	1360951	1444620	1967251	2510236	2996597
\$000/mi	73	86	98	104	142	181	216
\$/cct-mi	.26	.26	.19	.17	.16	.16	.14
\$/cct	114.81	111.87	76.52	67.67	64.50	63.31	58.61
LATA AC	1520150	1709694	2490850	2874761	3873909	4875342	6149785
\$000/mi	35	40	58	67	90	114	143
\$/cct-mi	.012	.011	.010	.009	.009	.009	.008
\$/cct	294.13	274.46	239.92	230.66	217.58	210.64	206.03
TOTAL AC	2536642	2903417	3851801	4319382	5841159	7385578	9146381
\$000/mi	45	51	68	76	103	130	161
\$/cct-mi	.020	.019	.015	.014	.013	.013	.012
\$/cct	180.91	171.80	136.75	127.74	120.93	117.61	112.95

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YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

48t FC DA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

NODE FC	2146315	2322062	2524426	3299168	4090070	4998803
\$000/mi	155	167	182	238	295	360
\$/cct-mi	.50	.32	.29	.27	.25	.24
\$/cct	201.14	130.56	118.24	108.17	103.16	97.76
LATA FC	3229837	4464283	5076421	6680864	8291100	10354429
\$000/mi	75	104	118	156	193	241
\$/cct-mi	.021	.018	.017	.015	.015	.014
\$/cct	518.49	430.00	407.31	375.23	358.21	346.90
TOTAL FC	5376152	6786345	7600847	9980033	12381169	15353232
\$000/mi	95	120	134	176	218	270
\$/cct-mi	.034	.026	.024	.022	.021	.020
\$/cct	318.11	240.93	224.79	206.61	197.17	189.59
NODE AC	1062102	1294233	1432121	1918070	2411581	2985822
\$000/mi	77	93	103	138	174	215
\$/cct-mi	.25	.18	.17	.16	.15	.14
\$/cct	99.53	72.77	67.08	62.89	60.82	58.40
LATA AC	1709694	2490850	2874761	3873909	4875342	6149785
\$000/mi	40	58	67	90	114	143
\$/cct-mi	.011	.010	.009	.009	.009	.008
\$/cct	274.46	239.92	230.66	217.58	210.64	206.03
TOTAL AC	2771796	3785083	4306882	5791978	7286922	9135607
\$000/mi	49	67	76	102	128	161
\$/cct-mi	.018	.015	.014	.013	.013	.012
\$/cct	164.01	134.38	127.38	119.91	116.04	112.81

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YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.6						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.6						

961 FC BA	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps
NODE FC						
\$000/mi	2622379	2716726	2863154	3684703	4520562	5354781
\$/cct-mi	189	196	208	265	326	386
\$/cct	.61	.38	.33	.30	.28	.26
	245.75	152.76	135.05	120.81	114.01	104.73
LATA FC						
\$000/mi	3229837	4464283	5076421	6680864	8291100	10354429
\$/cct-mi	75	104	118	156	193	241
\$/cct	.021	.018	.017	.015	.015	.014
	518.49	430.00	407.31	375.23	358.21	346.90
TOTAL FC						
\$000/mi	5852217	7181009	7959575	10365567	12811661	15709209
\$/cct-mi	103	126	140	183	226	277
\$/cct	.037	.028	.025	.023	.022	.021
	346.28	254.95	235.40	214.59	204.02	193.99
NODE AC						
\$000/mi	1266353	1451677	1572587	2070482	2582302	3124563
\$/cct-mi	91	105	113	149	186	225
\$/cct	.29	.20	.18	.17	.16	.15
	118.67	81.62	73.66	67.89	65.13	61.11
LATA AC						
\$000/mi	1709694	2490850	2874761	3873909	4875342	6149785
\$/cct-mi	40	58	67	90	114	143
\$/cct	.011	.010	.009	.009	.009	.008
	274.46	239.92	230.66	217.58	210.64	206.03
TOTAL AC						
\$000/mi	2976047	3942527	4447348	5944391	7457643	9274348
\$/cct-mi	52	69	78	105	131	163
\$/cct	.019	.015	.014	.013	.013	.012
	176.10	139.97	131.53	123.06	118.76	114.53

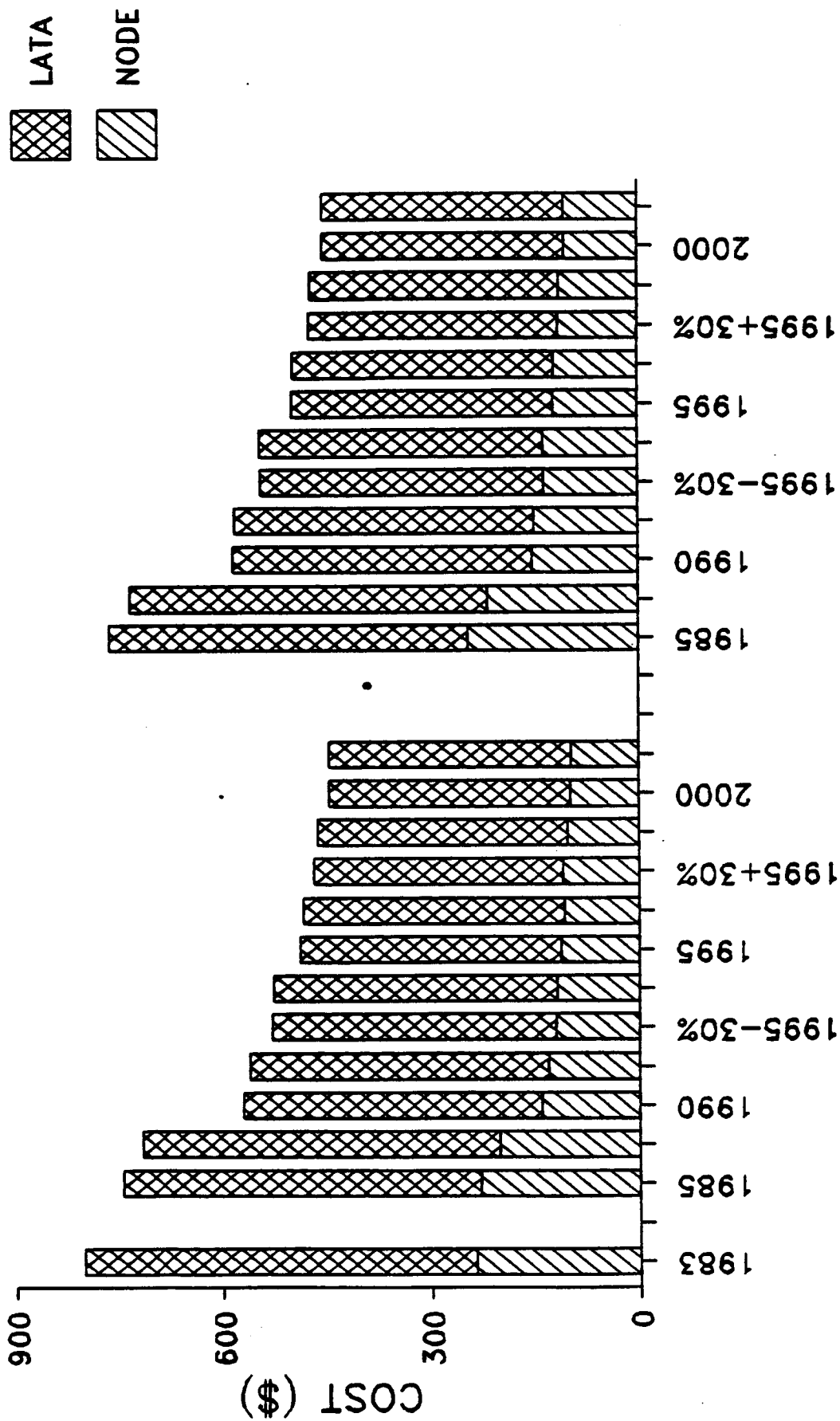
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YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

96f FD CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
NODE FC							
\$000/mi	2312093	2671500	2901718	3676461	4455876	5376096	
\$/cct-mi	167	192	209	265	321	387	
\$/cct	.53	.37	.34	.30	.28	.26	
	216.67	150.21	135.92	120.54	112.38	105.14	
LATA FC							
\$000/mi	3229837	4464283	5076421	6680864	8291100	10354429	
\$/cct-mi	75	104	118	156	193	241	
\$/cct	.021	.018	.017	.015	.015	.014	
	518.49	430.00	407.31	375.23	358.21	346.90	
TOTAL FC							
\$000/mi	5541930	7135783	7978139	10357325	12746975	15730524	
\$/cct-mi	98	126	141	182	225	277	
\$/cct	.035	.027	.025	.023	.022	.021	
	327.92	253.34	235.95	214.42	202.99	194.25	
NODE AC							
\$000/mi	1128938	1435114	1584231	2070180	2559060	3137933	
\$/cct-mi	81	103	114	149	184	226	
\$/cct	.26	.20	.18	.17	.16	.15	
	105.80	80.69	74.20	67.88	64.54	61.37	
LATA AC							
\$000/mi	1709694	2490850	2874761	3873909	4875342	6149785	
\$/cct-mi	40	58	67	90	114	143	
\$/cct	.011	.010	.009	.009	.009	.008	
	274.46	239.92	230.66	217.58	210.64	206.03	
TOTAL AC							
\$000/mi	2838631	3925963	4458992	5944089	7434402	9287717	
\$/cct-mi	50	69	79	105	131	164	
\$/cct	.018	.015	.014	.013	.013	.012	
	167.97	139.38	131.87	123.06	118.39	114.69	

EXHIBIT 6.111A: 23 NODE NETWORK - COMBINE

FIRST COST PER CIRCUIT



24f/96f FO CABLE

24f/48f FO CABLE

EXHIBIT 6.111B: 23 NODE NETWORK - COMBINE

REVENUE REQUIREMENTS PER CIRCUIT

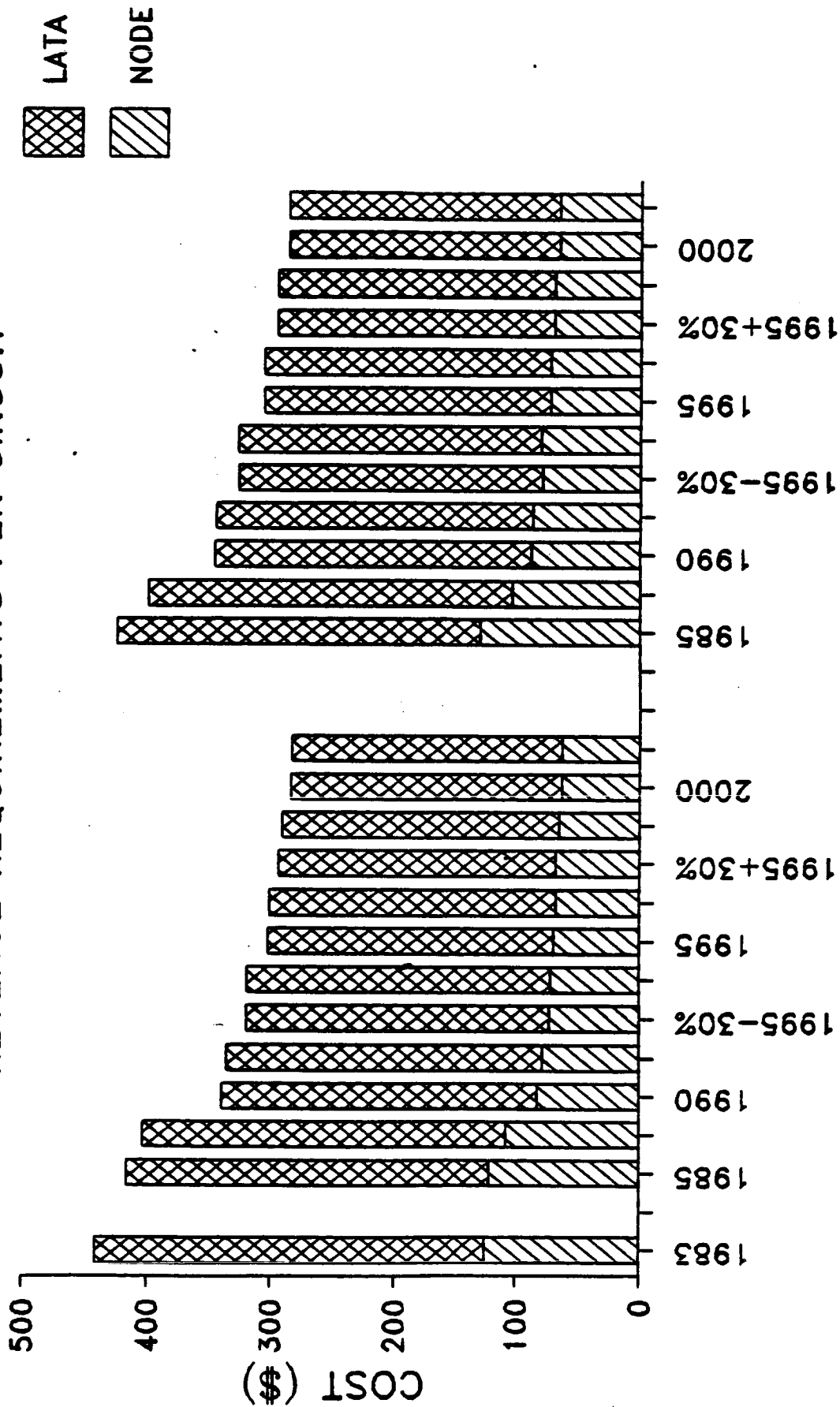


EXHIBIT 6.112: 23 NODE NETWORK - REVENUE REQUIREMENTS SUMMARY

Node Network: 48f or 96f FO Cable, various transmission rates
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC	2914262						
Erlangs	1653844	1993355	3322259	3988168	5697383	7406598	9551495

48f FO CA	405 mbps	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps
REV REQ	2737333	3130299	4130040	4625069	6245540	7890895	9762053
\$000/mi	48	55	73	81	110	139	172
\$/cct-mi	.021	.020	.016	.015	.014	.014	.013
\$/cct	195.22	185.22	146.63	136.79	129.30	125.66	120.55
\$/minute	.007	.007	.005	.005	.005	.005	.004

48f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
REV REQ	2986842	4056537	4610916	6191180	7782169	9749736	
\$000/mi	53	71	81	109	137	172	
\$/cct-mi	.019	.016	.015	.014	.013	.013	
\$/cct	176.73	144.02	136.37	128.17	123.93	120.40	
\$/minute	.006	.005	.005	.005	.004	.004	

96f FO CA	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps	
REV REQ	3210135	4229767	4765731	6359013	7970110	9902716	
\$000/mi	57	74	84	112	140	174	
\$/cct-mi	.021	.016	.015	.014	.014	.013	
\$/cct	189.95	150.17	140.95	131.65	126.92	122.29	
\$/minute	.007	.005	.005	.005	.005	.004	

96f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
REV REQ	3060309	4211395	4778118	6358382	7944281	9916938	
\$000/mi	54	74	84	112	140	175	
\$/cct-mi	.020	.016	.015	.014	.014	.013	
\$/cct	181.08	149.52	141.31	131.63	126.51	122.46	
\$/minute	.007	.005	.005	.005	.005	.004	

EXHIBIT 6.112A: 23 NODE NETWORK—FINANCIAL FIRST COST & REVENUE REQUIREMENTS

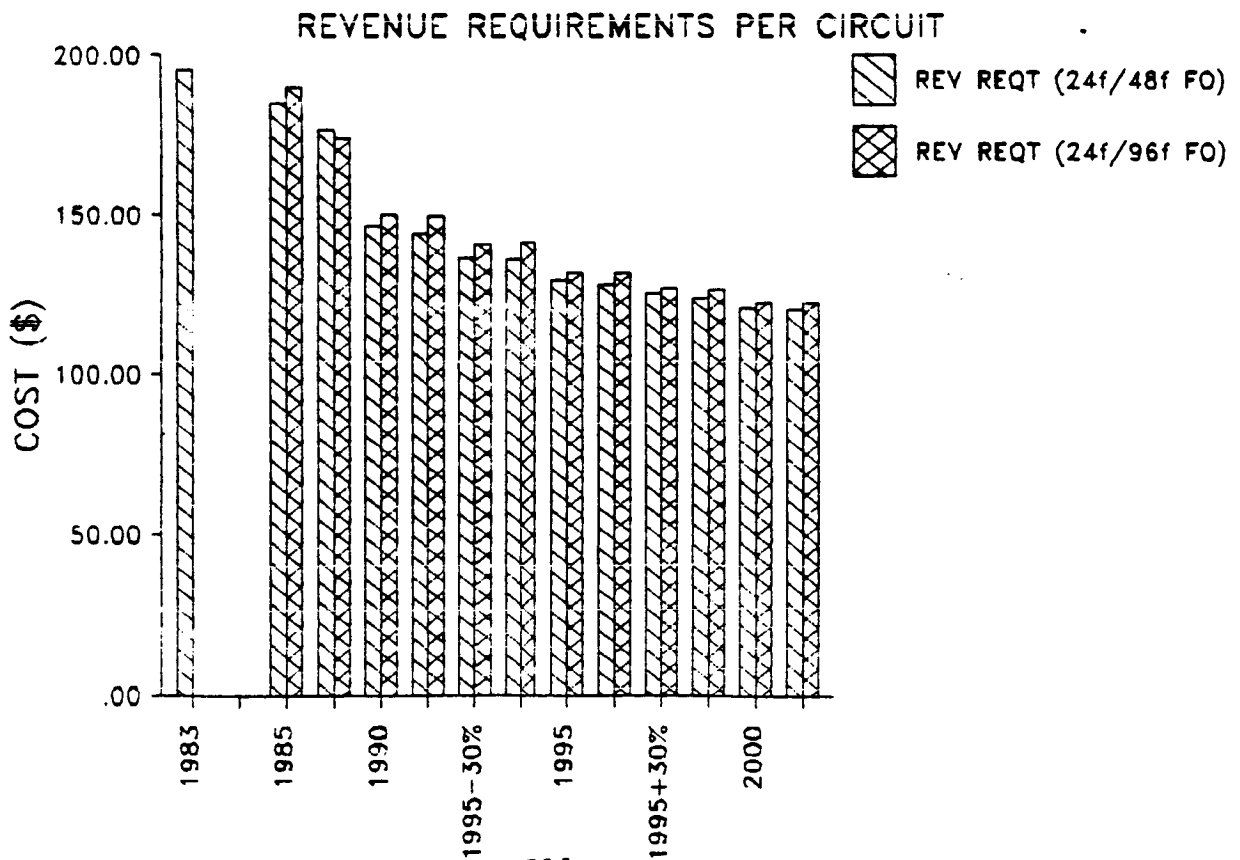
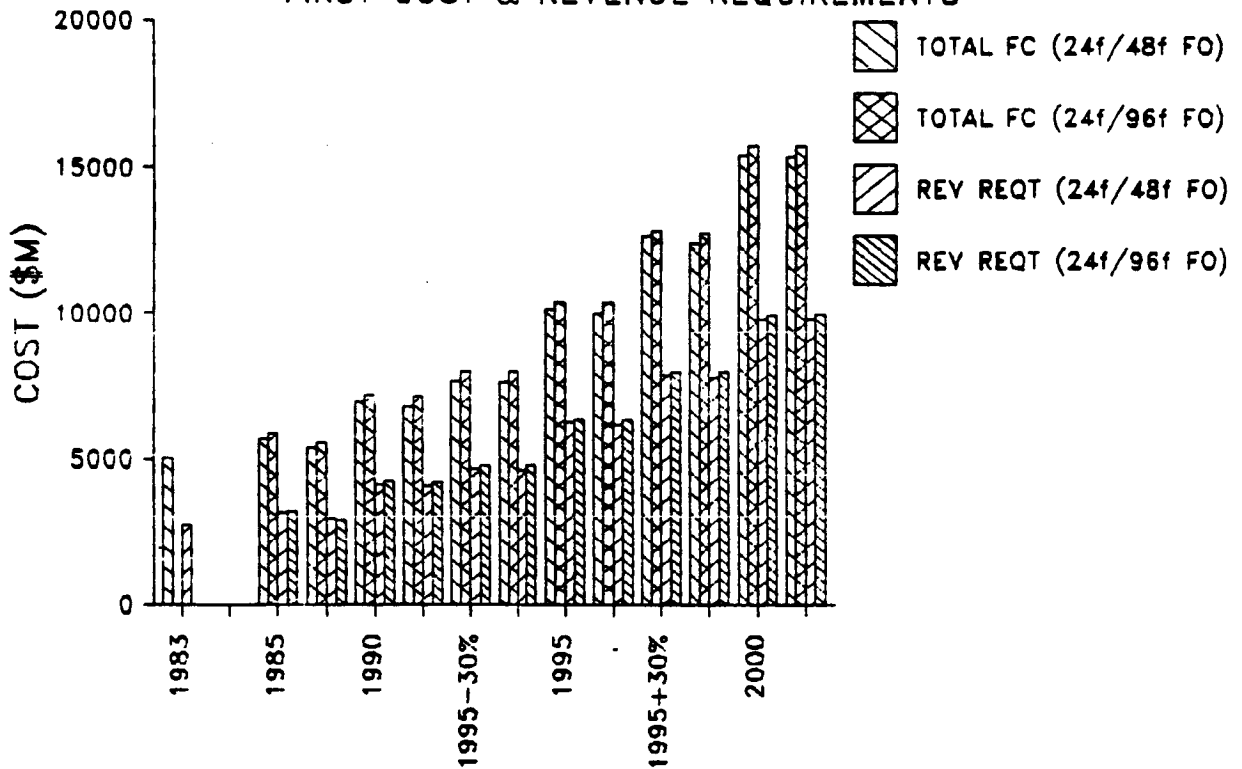
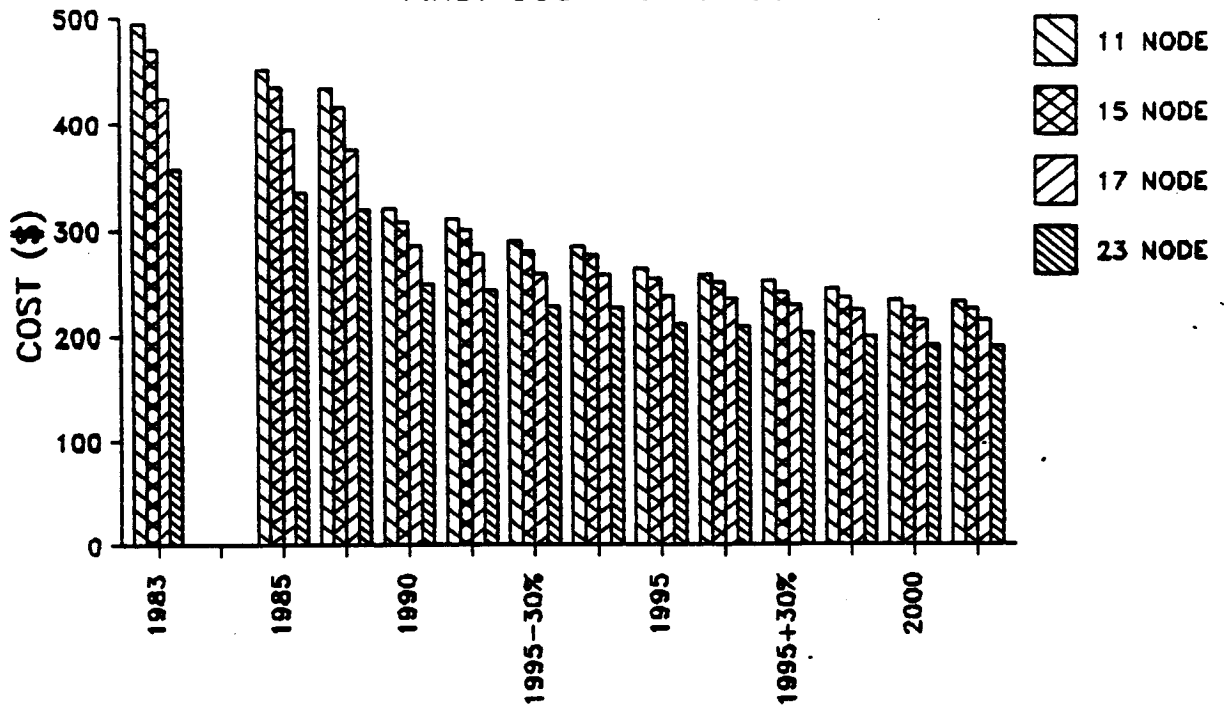


EXHIBIT 6.113: COMBINED NETWORKS

FIRST COST PER CIRCUIT



24f/48f FO CABLE

REVENUE REQUIREMENTS PER CIRCUIT

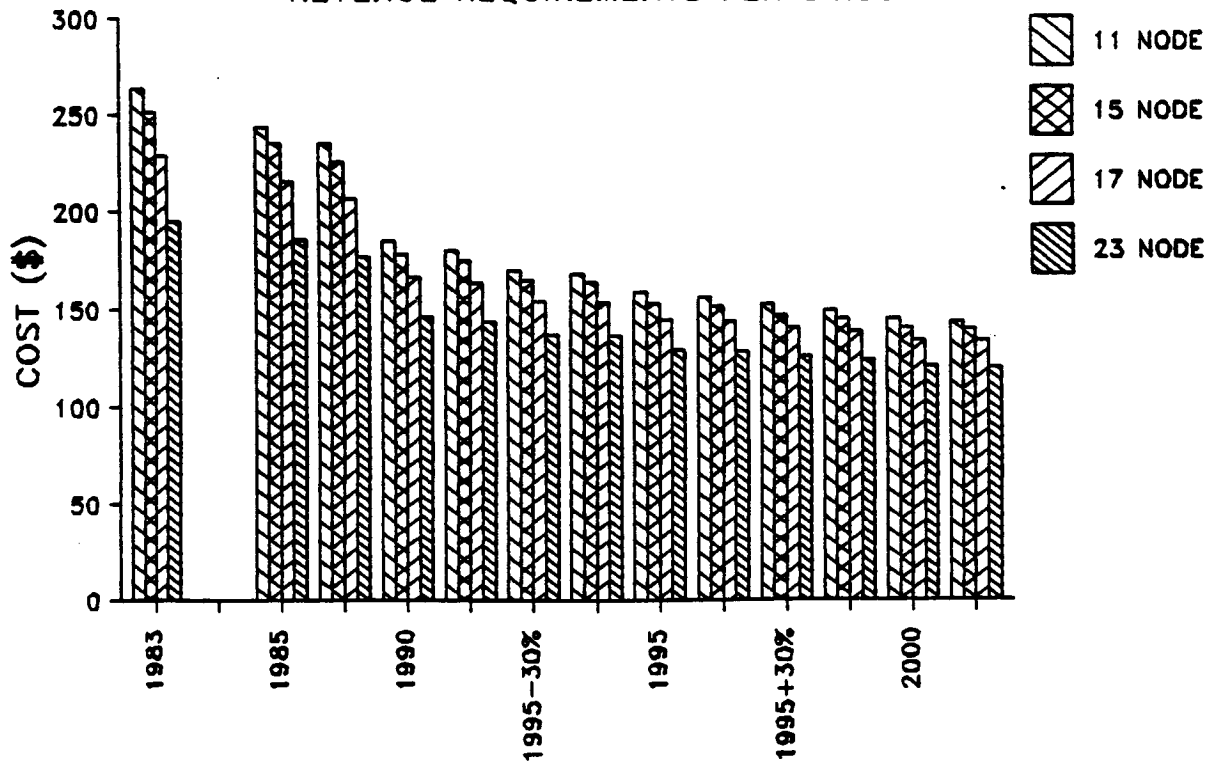
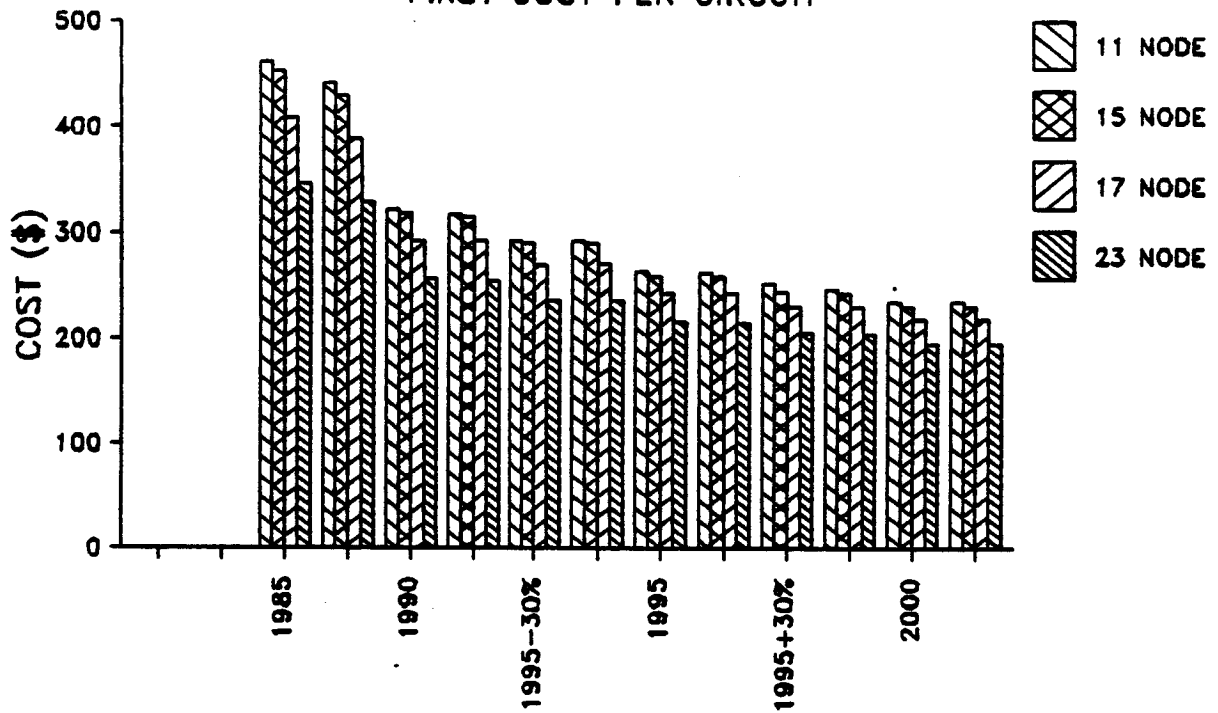


EXHIBIT 6.114: COMBINED NETWORKS

FIRST COST PER CIRCUIT



24f/96f FO CABLE

REVENUE REQUIREMENTS PER CIRCUIT

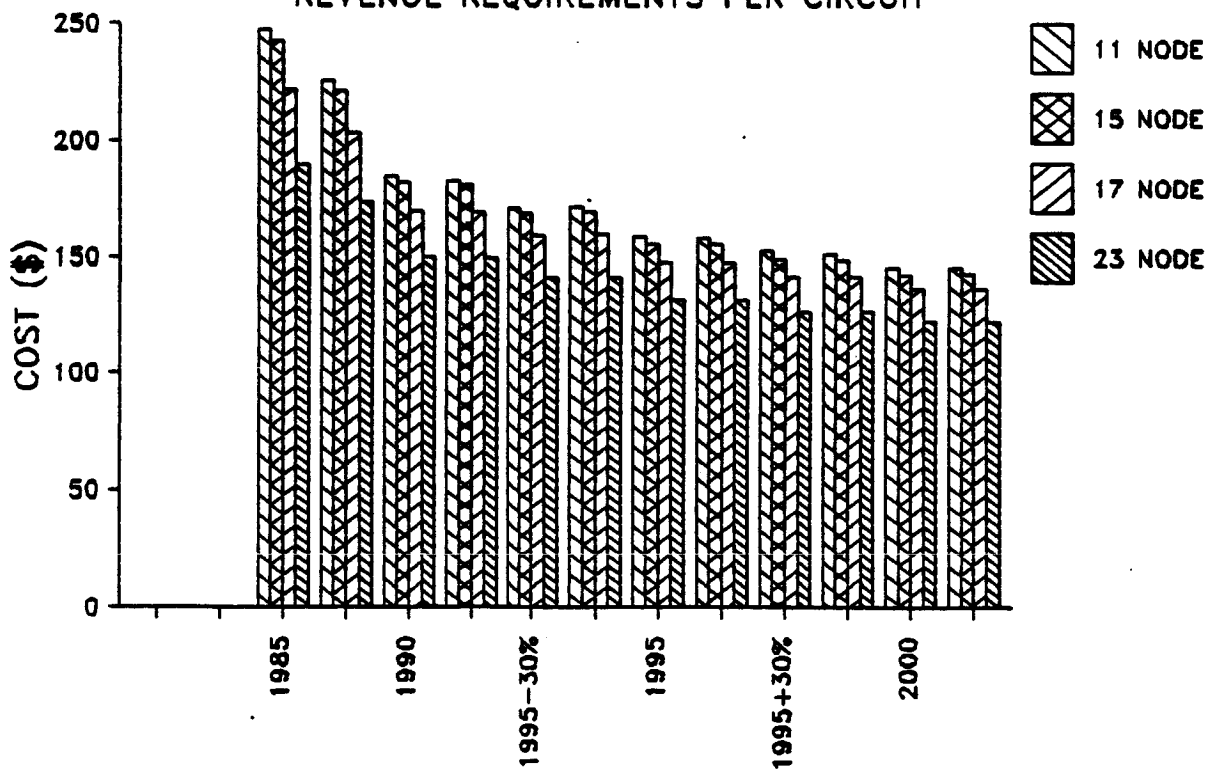


EXHIBIT 6.115: 11 NODE NETWORK-REVENUE REQ'TS SUMMARY-NO MULTIPLEX

Node Network: 48f or 96f FO Cable, various transmission rates
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC							
2530758							
Erlangs	1436205	1731038	2885064	3463342	4947632	6431921	8294559

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	1630521	1728511	1302663	1203721	1326625	1482400	1467029
\$000/mi	25	26	20	18	20	22	22
\$/cct-mi	.008	.007	.003	.003	.002	.002	.001
\$/cct	163.67	143.96	65.09	50.11	38.66	33.23	25.50
\$/minute	.005	.004	.002	.001	.001	.001	.001

48f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	1625567	1207052	1163169	1245939	1355147	1428424	
\$000/mi	25	18	18	19	21	22	
\$/cct-mi	.007	.003	.003	.002	.002	.001	
\$/cct	135.38	60.32	48.42	36.30	30.37	24.83	
\$/minute	.004	.002	.001	.001	.001	.001	

96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

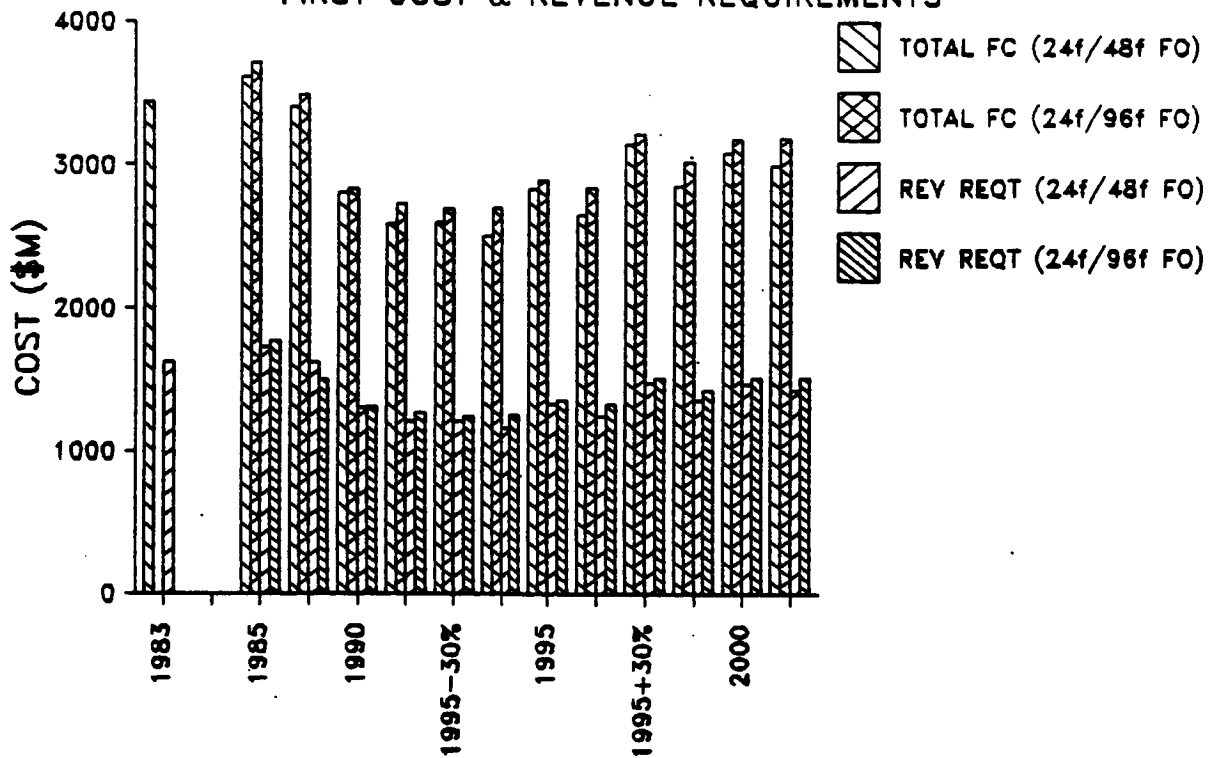
REV REQ	1772326	1314596	1246706	1352694	1511873	1510013	
\$000/mi	27	20	19	21	23	23	
\$/cct-mi	.008	.003	.003	.002	.002	.001	
\$/cct	147.61	65.69	51.90	39.42	33.89	26.25	
\$/minute	.004	.002	.002	.001	.001	.001	

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	1659108	1269716	1251274	1334044	1430783	1516529	
\$000/mi	25	19	19	20	22	23	
\$/cct-mi	.007	.003	.003	.002	.002	.001	
\$/cct	138.18	63.45	52.09	38.87	32.07	26.36	
\$/minute	.004	.002	.002	.001	.001	.001	

EXHIBIT 6.115A:11 NODE NETWORK—NO MUX

FIRST COST & REVENUE REQUIREMENTS



REVENUE REQUIREMENTS PER CIRCUIT

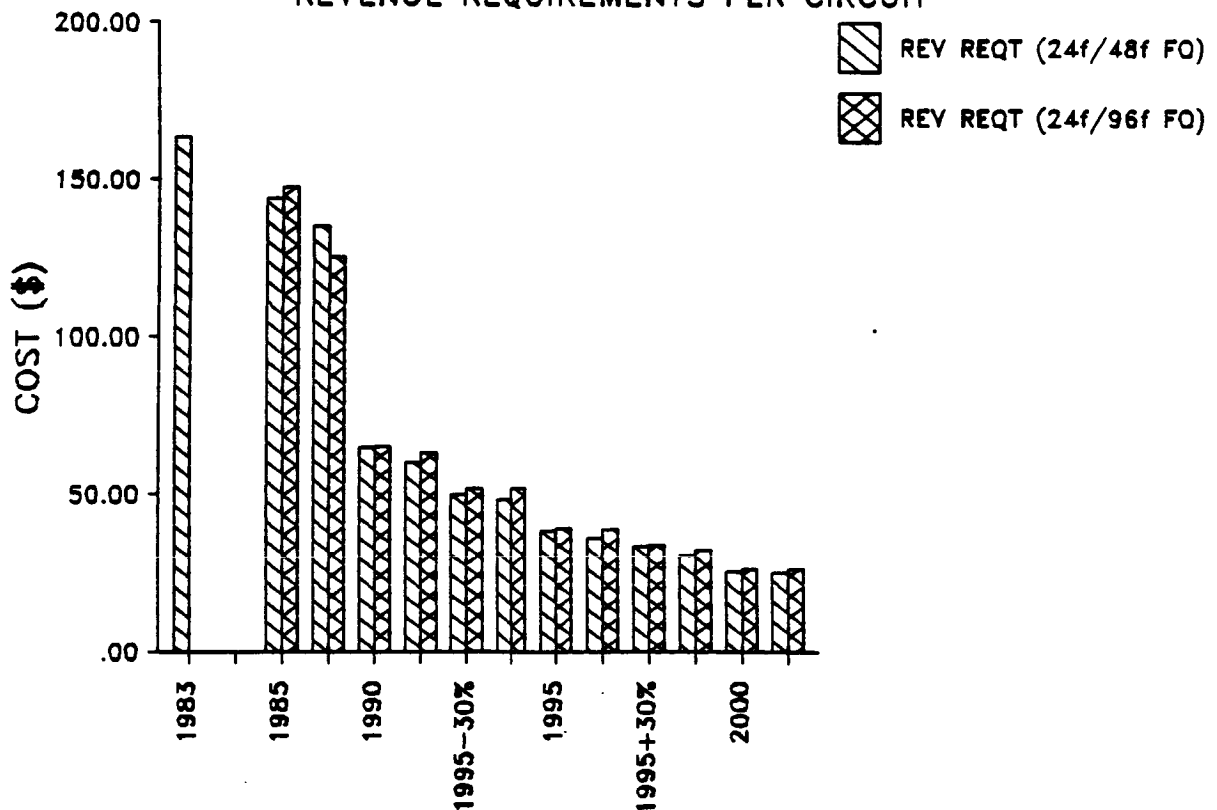


EXHIBIT 6.116: 15 NODE NETWORK-REVENUE REQ'TS SUMMARY-NO MULTIPLEX

Node Network: 48f or 96f FO Cable, various transmission rates
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC	2668829						
Erlangs	1514561	1825479	3042466	3652293	5217561	6782830	8747088

48f FO CA	405 mbps	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps
REV REQ	1631290	1765664	1300448	1220794	1310176	1443551	1439470
\$000/mi	25	27	20	19	20	22	22
\$/cct-mi	.010	.009	.004	.003	.002	.002	.002
\$/cct	153.08	137.47	60.75	47.51	35.69	30.25	23.39
\$/minute	.005	.004	.002	.001	.001	.001	.001

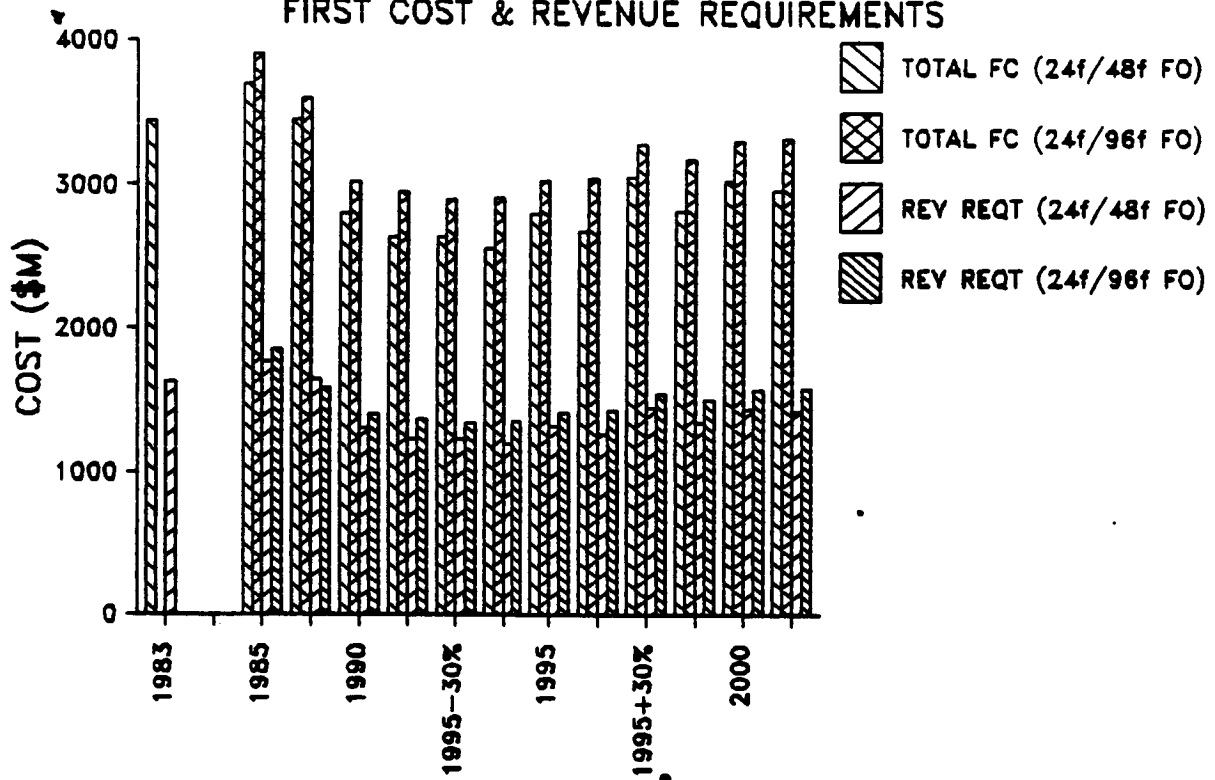
48f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
REV REQ	1643650	1226524	1186043	1262533	1341540	1417659	
\$000/mi	25	19	18	20	21	22	
\$/cct-mi	.008	.004	.003	.002	.002	.001	
\$/cct	127.97	57.30	46.15	34.39	28.11	23.03	
\$/minute	.004	.002	.001	.001	.001	.001	

96f FO CA	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps	
REV REQ	1858983	1397807	1335319	1411602	1541905	1565043	
\$000/mi	29	22	21	22	24	24	
\$/cct-mi	.009	.004	.003	.002	.002	.002	
\$/cct	144.74	65.30	51.96	38.45	32.31	25.43	
\$/minute	.004	.002	.002	.001	.001	.001	

96f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
REV REQ	1710961	1367738	1345688	1422179	1499895	1577304	
\$000/mi	26	21	21	22	23	24	
\$/cct-mi	.009	.004	.003	.003	.002	.002	
\$/cct	133.21	63.89	52.37	38.74	31.43	25.63	
\$/minute	.004	.002	.002	.001	.001	.001	

EXHIBIT 6.116A:15 NODE NETWORK—NO MUX

FIRST COST & REVENUE REQUIREMENTS



REVENUE REQUIREMENTS PER CIRCUIT

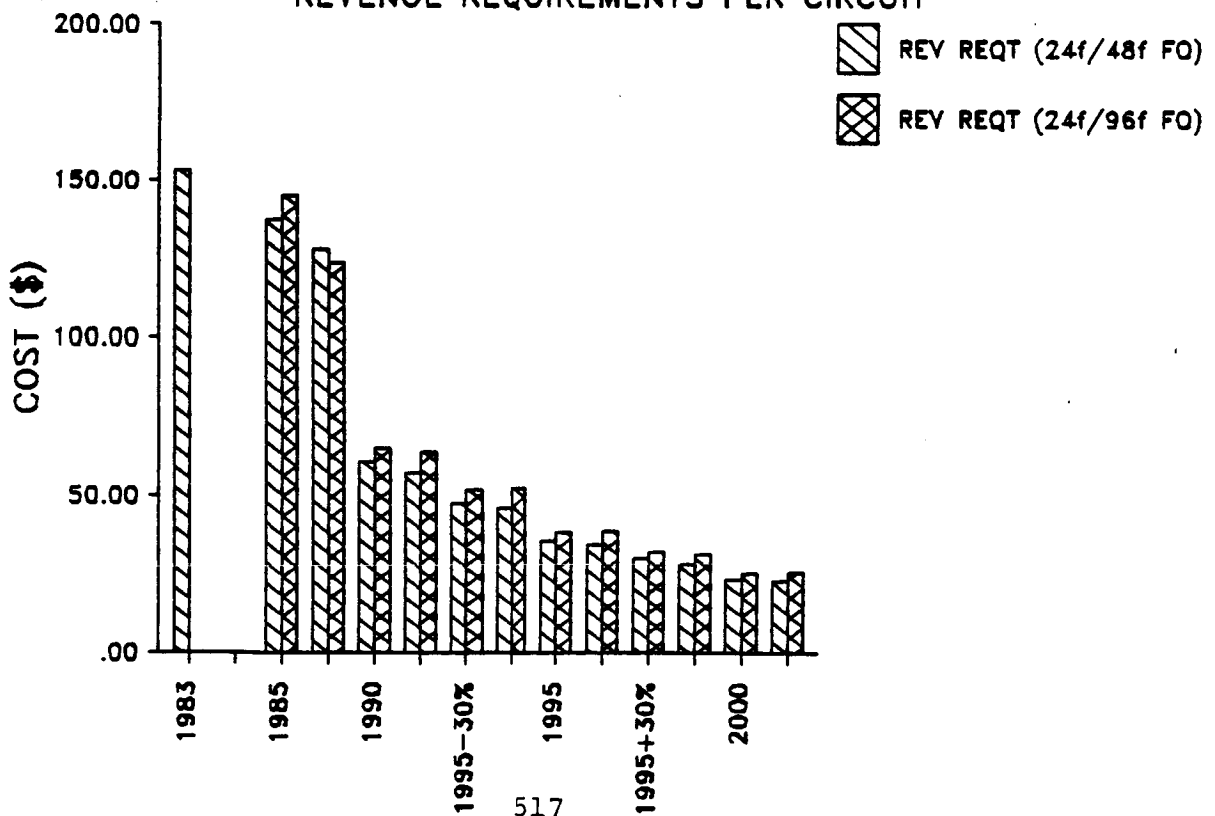


EXHIBIT 6.117: 17 NODE NETWORK-REVENUE REQ'TS SUMMARY-NO MULTIPLEX

Node Network: 48f or 96f FO Cable, various transmission rates
LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC	2830397						
Erlangs	1606250	1935991	3226652	3873398	5533426	7193453	9276626

48f FO CA	405 mbps	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps
REV REQ	1583528	1715392	1241120	1131892	1241430	1399123	1358563
\$000/mi	26	29	21	19	21	23	23
\$/cct-mi	.010	.009	.004	.003	.002	.002	.002
\$/cct	134.25	120.66	52.38	39.79	30.55	26.49	19.94
\$/minute	.004	.004	.002	.001	.001	.001	.001

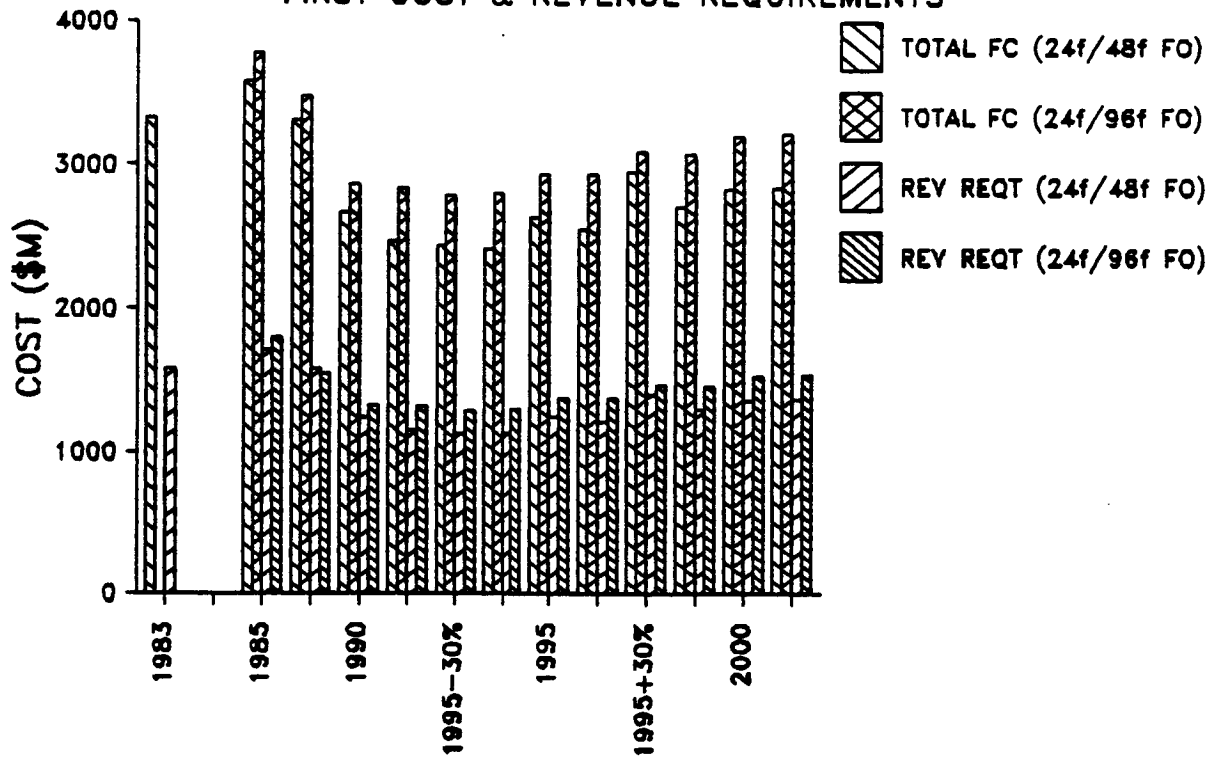
48f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
REV REQ	1583209	1156594	1127460	1204079	1293146	1364550	
\$000/mi	26	19	19	20	22	23	
\$/cct-mi	.009	.004	.003	.002	.002	.002	
\$/cct	111.36	48.81	39.64	29.63	24.48	20.03	
\$/minute	.003	.002	.001	.001	.001	.001	

96f FO CA	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps	
REV REQ	1800371	1326180	1285158	1370537	1461727	1520245	
\$000/mi	30	22	21	23	24	25	
\$/cct-mi	.010	.004	.003	.003	.002	.002	
\$/cct	126.64	55.97	45.18	33.73	27.67	22.32	
\$/minute	.004	.002	.001	.001	.001	.001	

96f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
REV REQ	1657057	1318276	1296396	1373014	1456751	1533486	
\$000/mi	28	22	22	23	24	26	
\$/cct-mi	.009	.004	.004	.003	.002	.002	
\$/cct	116.56	55.64	45.58	33.79	27.58	22.51	
\$/minute	.004	.002	.001	.001	.001	.001	

EXHIBIT 6.117A:17 NODE NETWORK—NO MUX

FIRST COST & REVENUE REQUIREMENTS



REVENUE REQUIREMENTS PER CIRCUIT

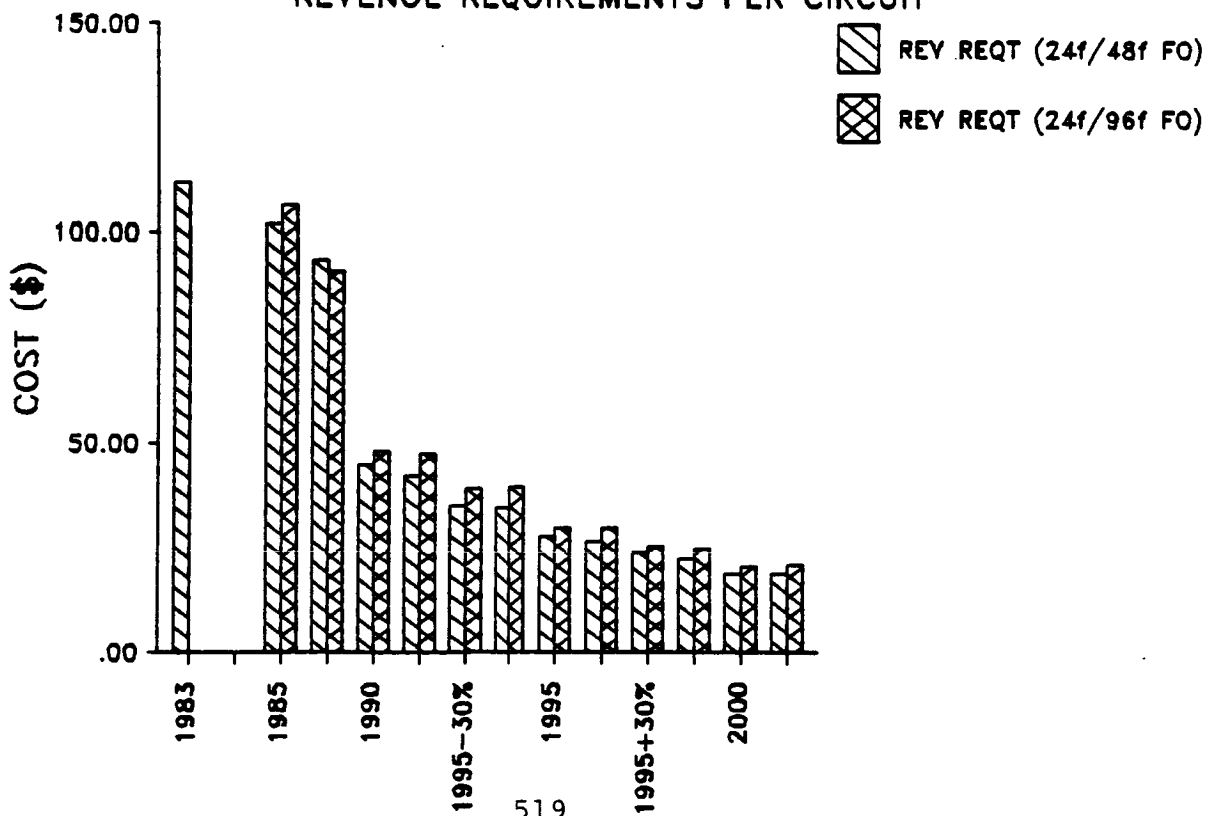


EXHIBIT 6.118: 23 NODE NETWORK-REVENUE REQ'TS SUMMARY-NO MULTIPLEX

Node Network: 48f or 96f FO Cable, various transmission rates
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

TRAFFIC	2914262						
Erlangs	1653844	1993355	3322259	3988168	5697383	7406598	9551495

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ'T	1570586	1724333	1262613	1183688	1330523	1502903	1524956
\$000/mi	28	30	22	21	23	26	27
\$/cct-mi	.012	.011	.005	.004	.003	.003	.002
\$/cct	112.01	102.03	44.83	35.01	27.54	23.93	18.83
\$/minute	.004	.004	.002	.001	.001	.001	.001

48f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ'T	1580876	1189110	1169535	1276163	1394178	1512639	
\$000/mi	28	21	21	22	25	27	
\$/cct-mi	.010	.005	.004	.003	.002	.002	
\$/cct	93.54	42.22	34.59	26.42	22.20	18.68	
\$/minute	.003	.002	.001	.001	.001	.001	

96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ'T	1804169	1362340	1324351	1443997	1582119	1665618	
\$000/mi	32	24	23	25	28	29	
\$/cct-mi	.012	.005	.004	.003	.003	.002	
\$/cct	106.75	48.37	39.17	29.89	25.20	20.57	
\$/minute	.004	.002	.001	.001	.001	.001	

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ'T	1654342	1343968	1336737	1443365	1556290	1679841	
\$000/mi	29	24	24	25	27	30	
\$/cct-mi	.011	.005	.004	.003	.003	.002	
\$/cct	97.89	47.71	39.53	29.88	24.78	20.74	
\$/minute	.004	.002	.001	.001	.001	.001	

EXHIBIT 6.118A:23 NODE NETWORK—NO MUX FIRST COST & REVENUE REQUIREMENTS

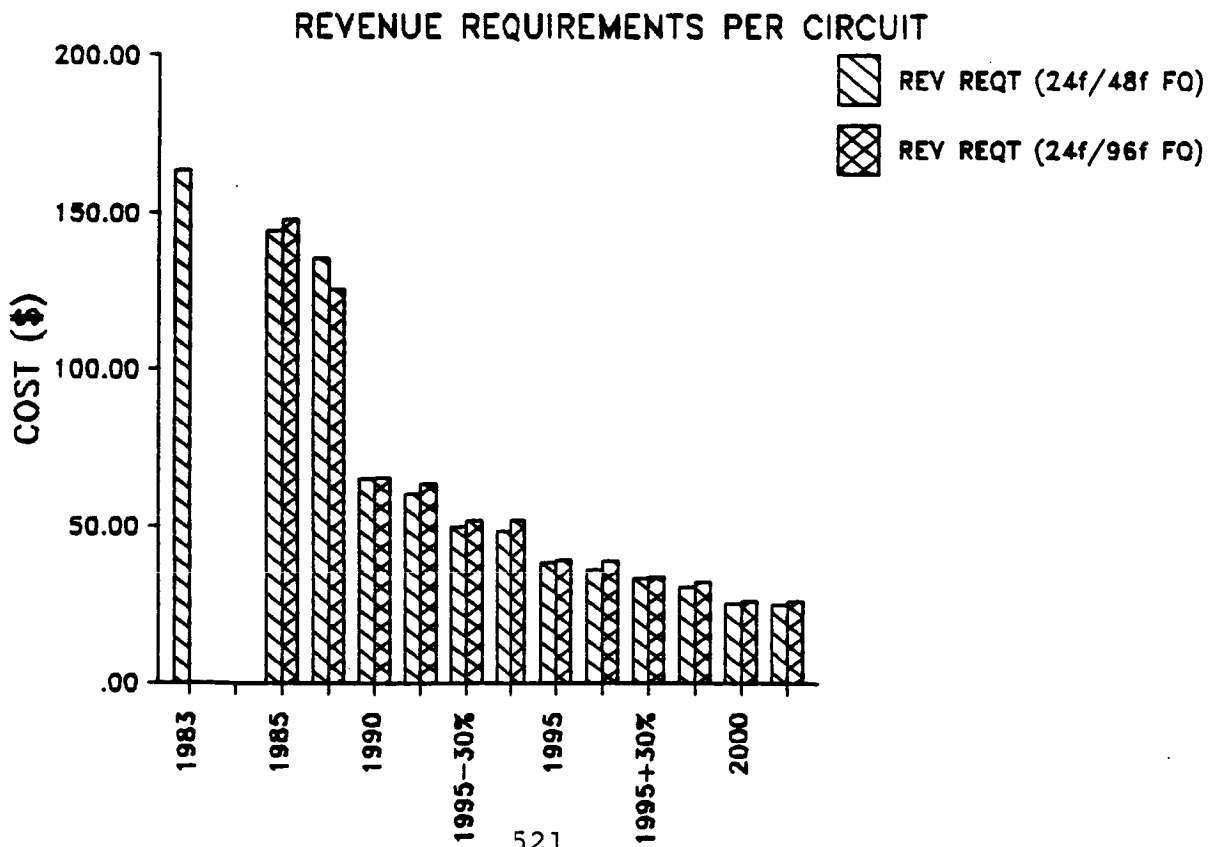
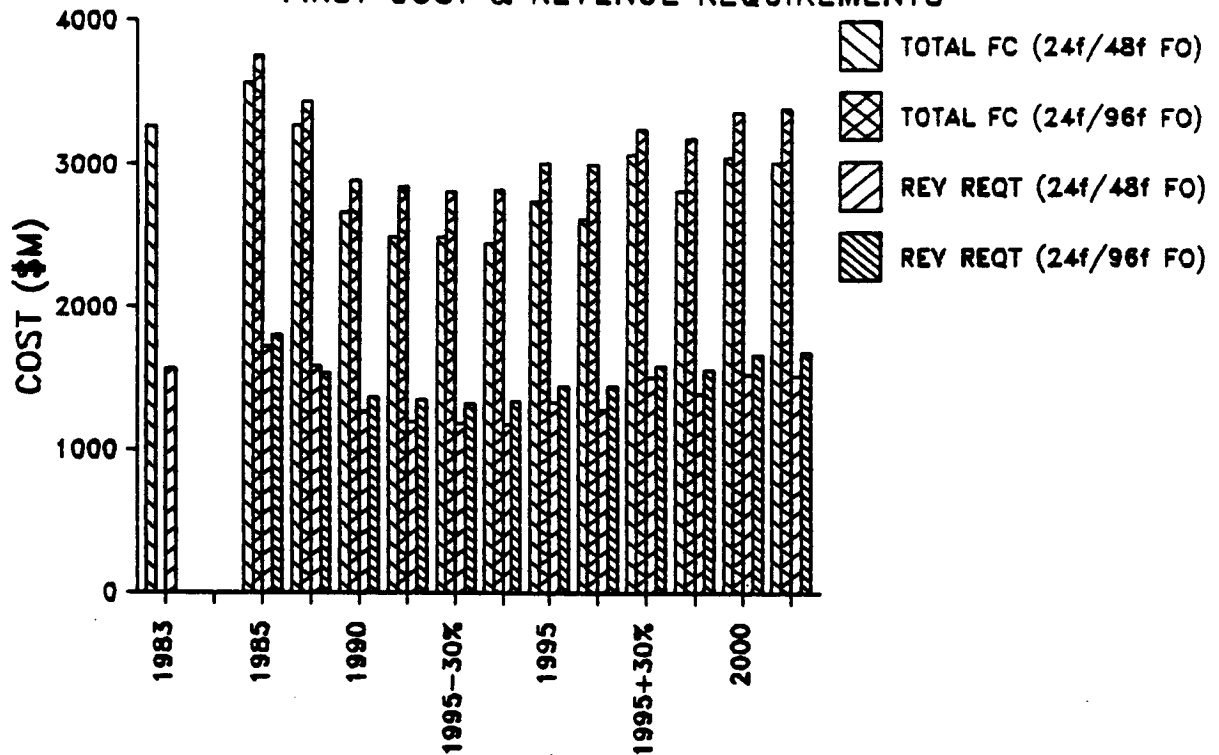


EXHIBIT 6.119: 11 NODE NETWORK-REVENUE REQ'TS SUMMARY-1980's TECHNOLOGY

Node Network: 48f or 96f FO Cable, 405 mbps transmission rate
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						

LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						

TRAFFIC	2530758						
Erlangs	1436205	1731038	2885064	3463342	4947632	6431921	8294559

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2625904	2927714	4286850	4948995	6681227	8444903	10672039
\$000/mi	40	44	65	75	101	128	162
\$/cct-mi	.014	.013	.011	.011	.010	.010	.010
\$/cct	263.59	243.83	214.21	206.01	194.68	189.29	185.49
\$/minute	.008	.007	.006	.006	.006	.006	.005

48f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2927714	4286850	4948995	6681227	8444903	10672039	
\$000/mi	44	65	75	101	128	162	
\$/cct-mi	.013	.011	.011	.010	.010	.010	
\$/cct	243.83	214.21	206.01	194.68	189.29	185.49	
\$/minute	.007	.006	.006	.006	.006	.006	.005

96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2971529	4312102	4918437	6671118	8415368	10607129	
\$000/mi	45	65	75	101	128	161	
\$/cct-mi	.013	.011	.011	.010	.010	.010	
\$/cct	247.48	215.48	204.74	194.39	188.63	184.36	
\$/minute	.007	.006	.006	.006	.006	.006	.005

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2971529	4312102	4918437	6671118	8415368	10607129	
\$000/mi	45	65	75	101	128	161	
\$/cct-mi	.013	.011	.011	.010	.010	.010	
\$/cct	247.48	215.48	204.74	194.39	188.63	184.36	
\$/minute	.007	.006	.006	.006	.006	.006	.005

EXH.6.119A:11 NODE NETWORK-1980's TECH FIRST COST & REVENUE REQUIREMENTS

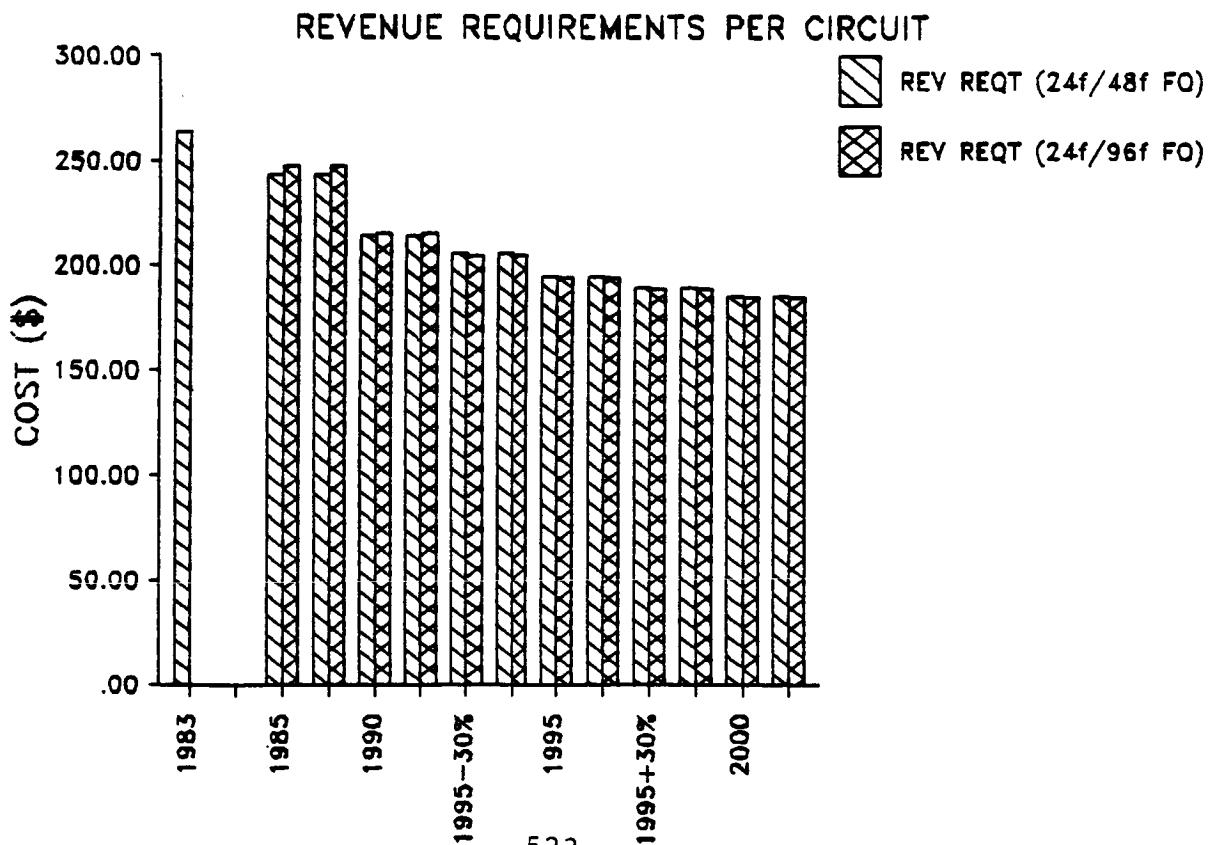
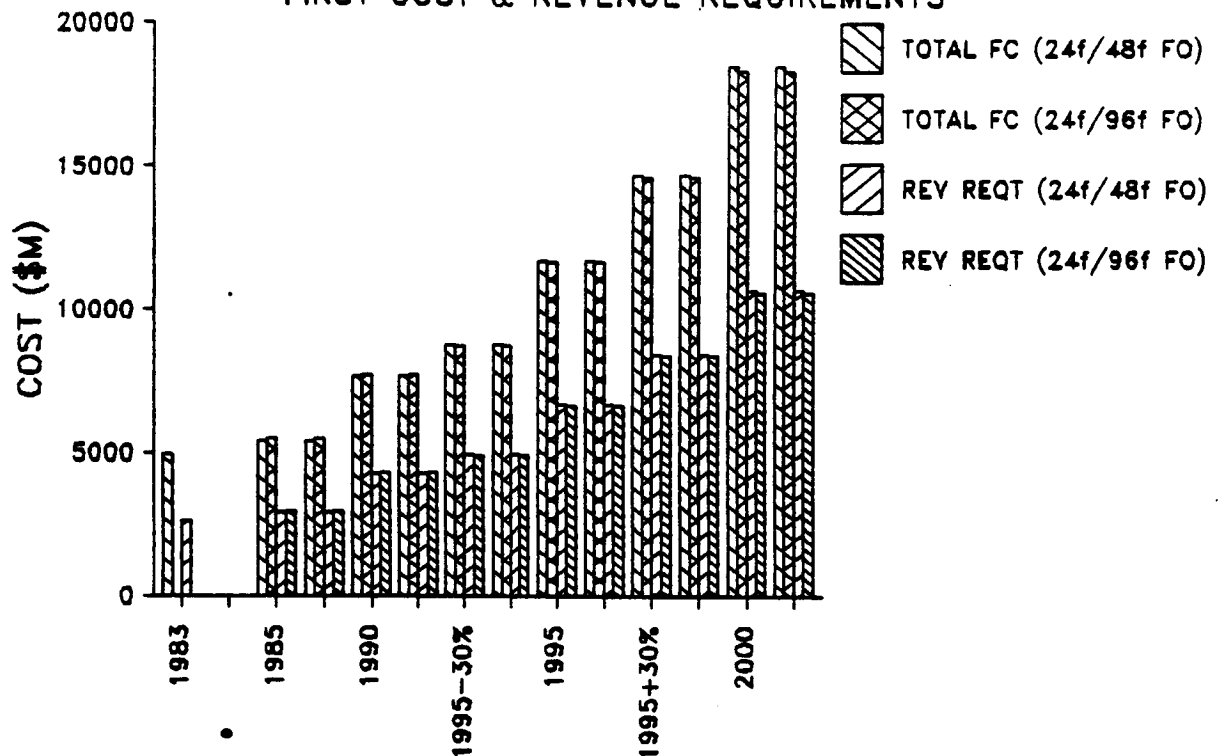


EXHIBIT 6.120: 15 NODE NETWORK-REVENUE REQ'TS SUMMARY-1980's TECHNOLOGY

Node Network: 48f or 96f FO Cable, 405 mbps transmission rate
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC	2668829						
Erlangs	1514561	1825479	3042466	3652293	5217561	6782830	8747088

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2677033	3025883	4414147	5105027	6897474	8706905	11021045
\$000/mi	41	47	68	79	107	135	171
\$/cct-mi	.016	.015	.013	.013	.012	.012	.012
\$/cct	251.22	235.59	206.21	198.66	187.89	182.45	179.08
\$/minute	.008	.007	.006	.006	.006	.005	.005

48f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	3025883	4414147	5105027	6897474	8706905	11021045
\$000/mi	47	68	79	107	135	171
\$/cct-mi	.015	.013	.013	.012	.012	.012
\$/cct	235.59	206.21	198.66	187.89	182.45	179.08
\$/minute	.007	.006	.006	.006	.005	.005

96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

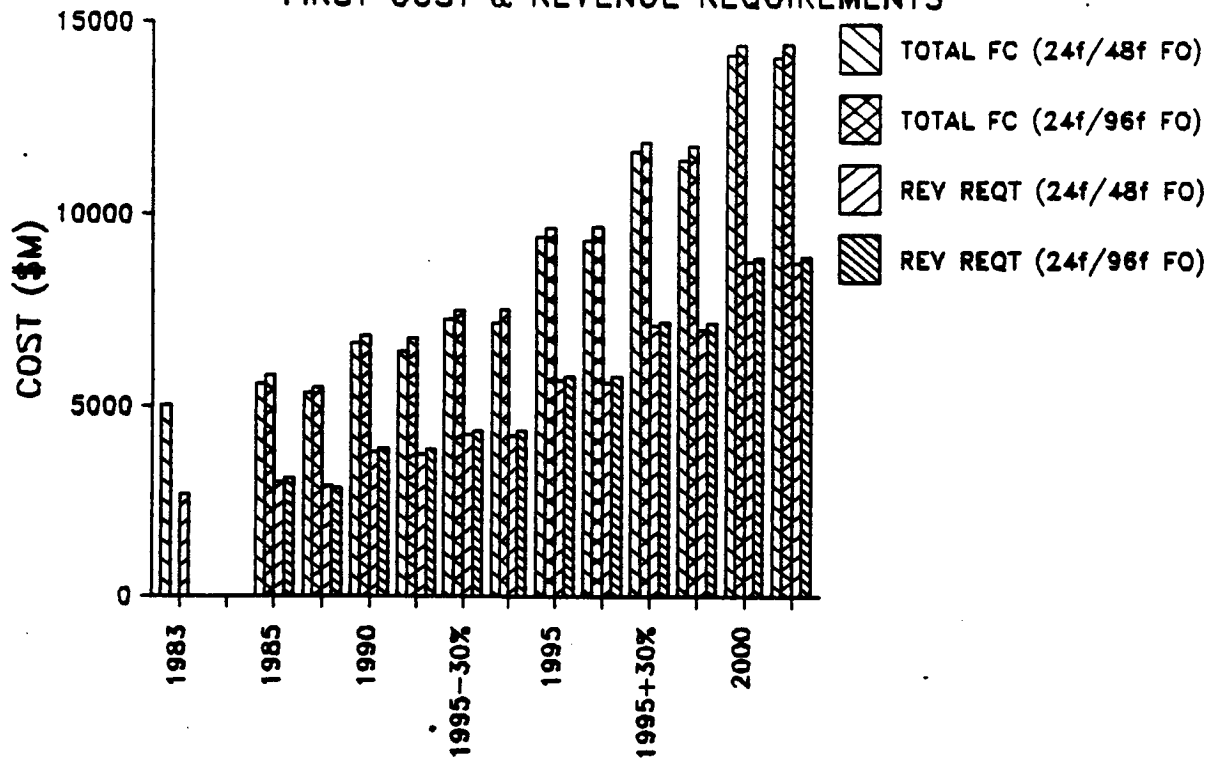
REV REQ	3119202	4457654	5137514	6910406	8702374	10970835
\$000/mi	48	69	80	107	135	170
\$/cct-mi	.016	.013	.013	.012	.012	.012
\$/cct	242.85	208.24	199.92	188.24	182.35	178.26
\$/minute	.007	.006	.006	.006	.005	.005

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	3119202	4457654	5137514	6910406	8702374	10970835
\$000/mi	48	69	80	107	135	170
\$/cct-mi	.016	.013	.013	.012	.012	.012
\$/cct	242.85	208.24	199.92	188.24	182.35	178.26
\$/minute	.007	.006	.006	.006	.005	.005

EXH.6.120A:15 NODE NETWORK-1980's TECH

FIRST COST & REVENUE REQUIREMENTS



REVENUE REQUIREMENTS PER CIRCUIT

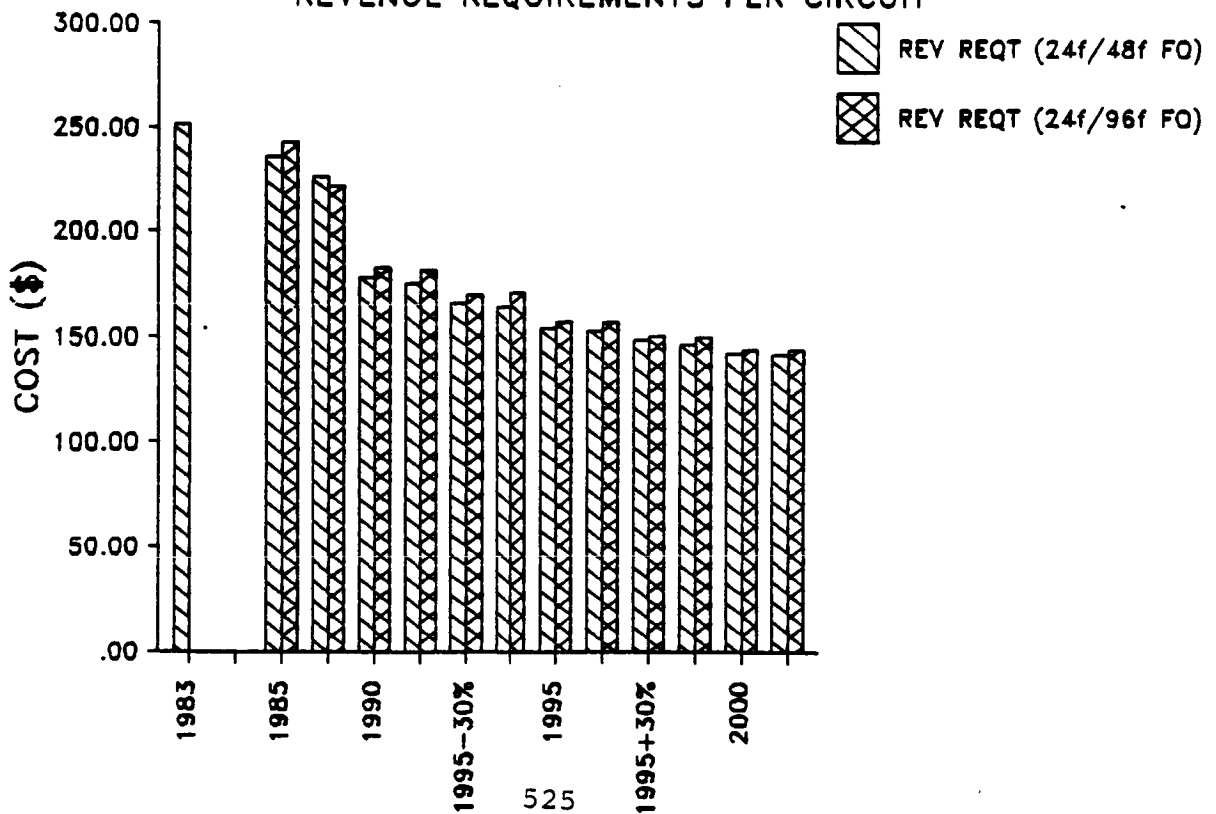


EXHIBIT 6.121: 17 NODE NETWORK-REVENUE REQ'TS SUMMARY-1980's TECHNOLOGY

Node Network: 48f or 96f FO Cable, 405 mbps transmission rate
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC							
2830397							
Erlangs	1606250	1935991	3226652	3873398	5533426	7193453	9276626

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2705228	3067046	4510989	5254770	7170022	9088121	11483723
\$000/mi	45	51	75	88	120	152	192
\$/cct-mi	.018	.017	.015	.014	.014	.013	.013
\$/cct	229.35	215.74	190.38	184.74	176.46	172.05	168.58
\$/minute	.007	.007	.006	.006	.006	.005	.005

48f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	3067046	4510989	5254770	7170022	9088121	11483723	
\$000/mi	51	75	88	120	152	192	
\$/cct-mi	.017	.015	.014	.014	.013	.013	
\$/cct	215.74	190.38	184.74	176.46	172.05	168.58	
\$/minute	.007	.006	.006	.006	.005	.005	

96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

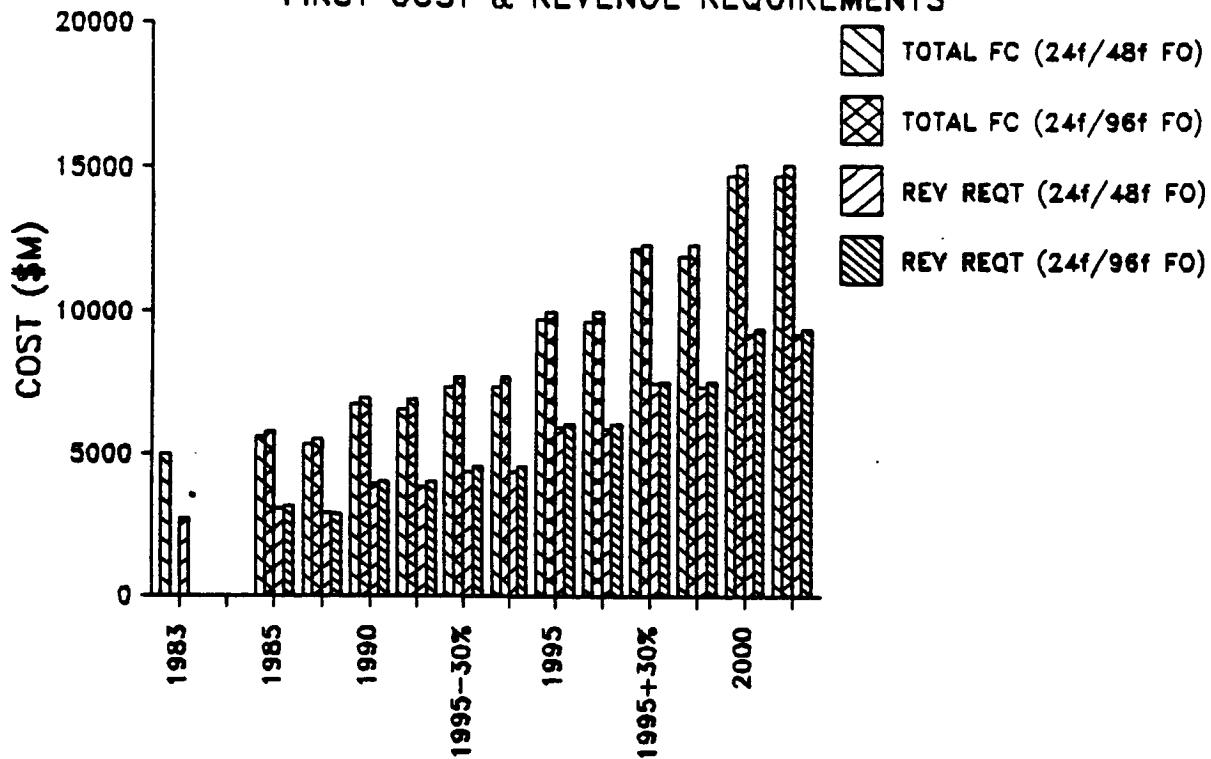
REV REQ	3152026	4577257	5290701	7169122	9088207	11447897	
\$000/mi	53	76	88	120	152	191	
\$/cct-mi	.017	.015	.014	.014	.013	.013	
\$/cct	221.71	193.18	186.01	176.43	172.05	168.05	
\$/minute	.007	.006	.006	.006	.005	.005	

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	3152026	4577257	5290701	7169122	9088207	11447897	
\$000/mi	53	76	88	120	152	191	
\$/cct-mi	.017	.015	.014	.014	.013	.013	
\$/cct	221.71	193.18	186.01	176.43	172.05	168.05	
\$/minute	.007	.006	.006	.006	.005	.005	

EXH.6.121A:17 NODE NETWORK-1980's TECH

FIRST COST & REVENUE REQUIREMENTS



REVENUE REQUIREMENTS PER CIRCUIT

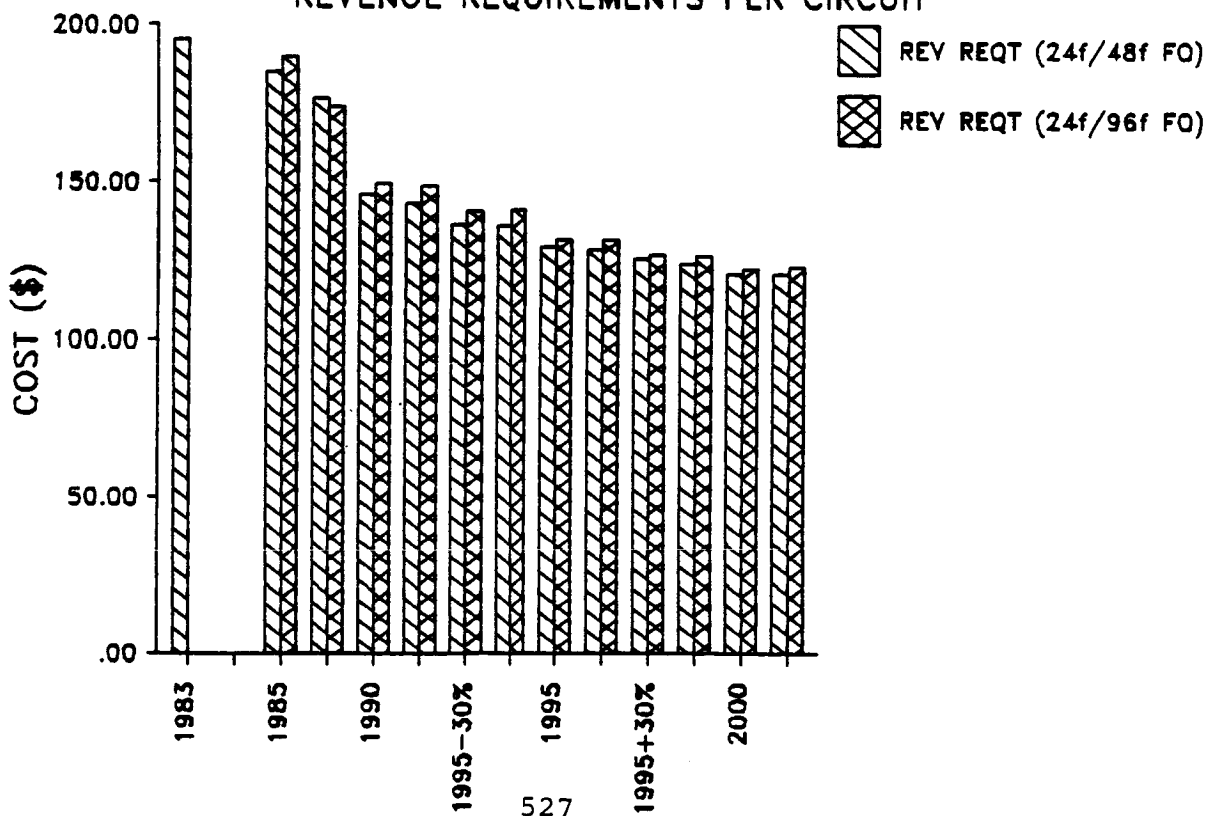


EXHIBIT 6.122: 23 NODE NETWORK-REVENUE REQ'TS SUMMARY-1980's TECHNOLOGY

Node Network: 48f or 96f FO Cable, 405 mbps transmission rate
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC	2914262						
Erlangs	1653844	1993355	3322259	3988168	5697383	7406598	9551495

48f FO CA	405 mbps	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps
REV REQ	2737333	3130299	4636794	5409061	7409898	9368417	11908549
\$000/mi	48	55	82	95	131	165	210
\$/cct-mi	.021	.020	.018	.017	.017	.016	.016
\$/cct	195.22	185.22	164.62	159.97	153.40	149.19	147.06
\$/minute	.007	.007	.006	.006	.006	.005	.005

48f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
REV REQ	3130299	4636794	5409061	7409898	9368417	11908549	
\$000/mi	55	82	95	131	165	210	
\$/cct-mi	.020	.018	.017	.017	.016	.016	
\$/cct	185.22	164.62	159.97	153.40	149.19	147.06	
\$/minute	.007	.006	.006	.006	.005	.005	

96f FO CA	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps	
REV REQ	3210135	4664553	5455528	7447211	9382836	11900454	
\$000/mi	57	82	96	131	165	210	
\$/cct-mi	.021	.018	.017	.017	.016	.016	
\$/cct	189.95	165.60	161.35	154.17	149.42	146.96	
\$/minute	.007	.006	.006	.006	.005	.005	

96f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
REV REQ	3210135	4664553	5455528	7447211	9382836	11900454	
\$000/mi	57	82	96	131	165	210	
\$/cct-mi	.021	.018	.017	.017	.016	.016	
\$/cct	189.95	165.60	161.35	154.17	149.42	146.96	
\$/minute	.007	.006	.006	.006	.005	.005	

EXH.6.122A:23 NODE NETWORK-1980's TECH

FIRST COST & REVENUE REQUIREMENTS

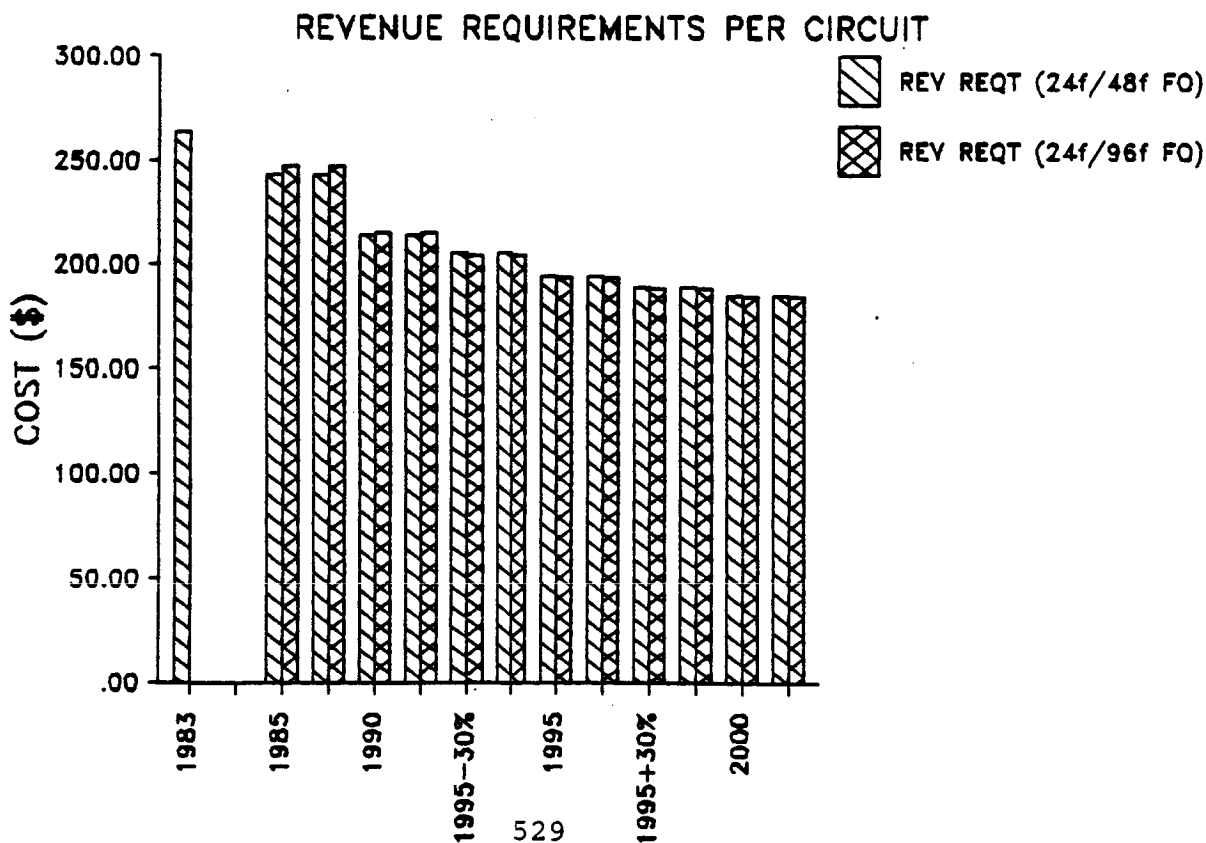
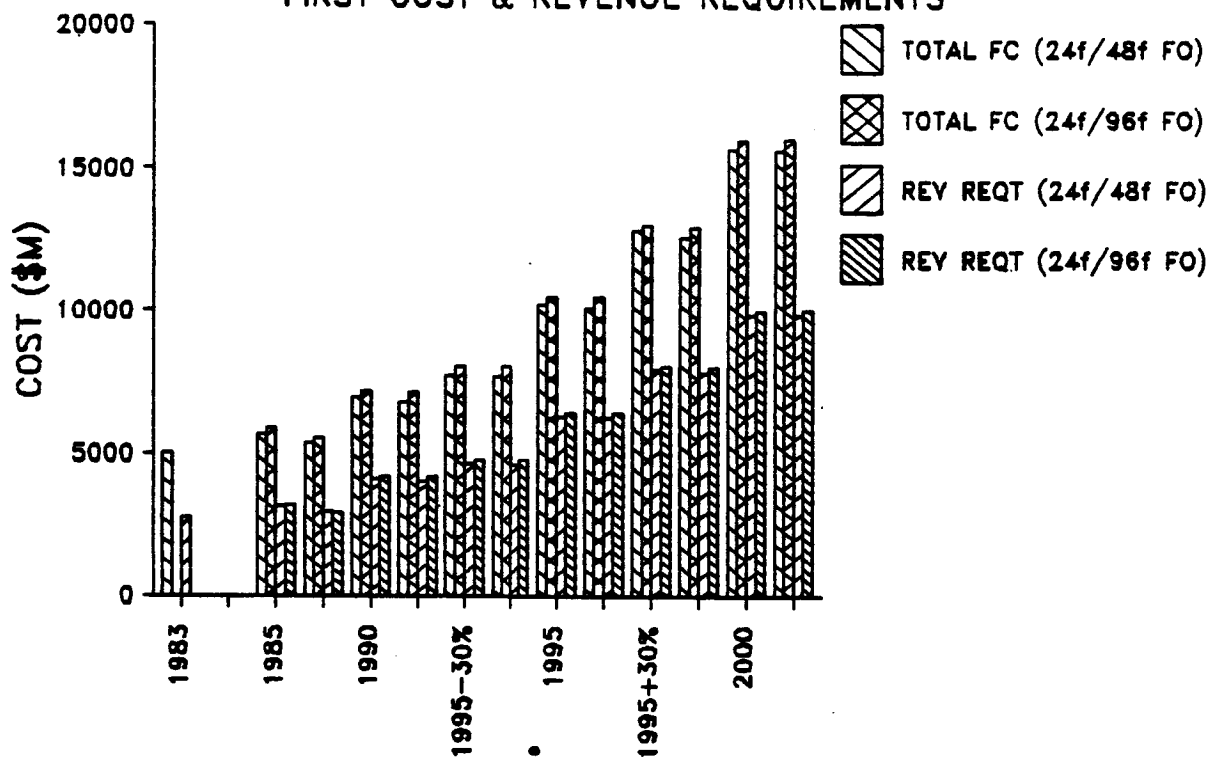


EXHIBIT 6.123: 11 NODE NETWORK-REVENUE REQ'TS SUMMARY-REGULATED

Node Network: 48f or 96f FO Cable, various transmission rates
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC							
2530758							
Erlangs	1436205	1731038	2885064	3463342	4947632	6431921	8294559

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps4.05 gbps							
REV REQ	2055410	2286680	2769867	3007962	3990116	5001402	6059656
\$000/mi	31	35	42	46	61	76	92
\$/cct-mi	.011	.010	.007	.006	.006	.006	.005
\$/cct	206.32	190.44	138.41	125.21	116.27	112.10	105.32
\$/minute	.006	.006	.004	.004	.003	.003	.003

48f FO CA 565 mbps 1.7 gbps4.05 gbps4.05 gbps4.05 gbps 8.1 gbps							
REV REQ	2183736	2674256	2967409	3909430	4874149	6021052	
\$000/mi	33	41	45	59	74	91	
\$/cct-mi	.009	.007	.006	.006	.006	.005	
\$/cct	181.87	133.63	123.52	113.92	109.25	104.65	
\$/minute	.005	.004	.004	.003	.003	.003	

96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps4.05 gbps							
REV REQ	2330495	2781799	3050946	4016185	5030875	6102641	
\$000/mi	35	42	46	61	76	93	
\$/cct-mi	.010	.007	.007	.006	.006	.005	
\$/cct	194.09	139.01	127.00	117.03	112.76	106.07	
\$/minute	.006	.004	.004	.003	.003	.003	

96f FO CA 565 mbps 1.7 gbps4.05 gbps4.05 gbps4.05 gbps 8.1 gbps							
REV REQ	2217277	2736920	3055514	3997535	4949785	6109156	
\$000/mi	34	42	46	61	75	93	
\$/cct-mi	.010	.007	.007	.006	.006	.005	
\$/cct	184.66	136.76	127.19	116.48	110.95	106.18	
\$/minute	.005	.004	.004	.003	.003	.003	

EXHIBIT 6.123A:11 NODE NETWORK—REGULATED

FIRST COST & REVENUE REQUIREMENTS

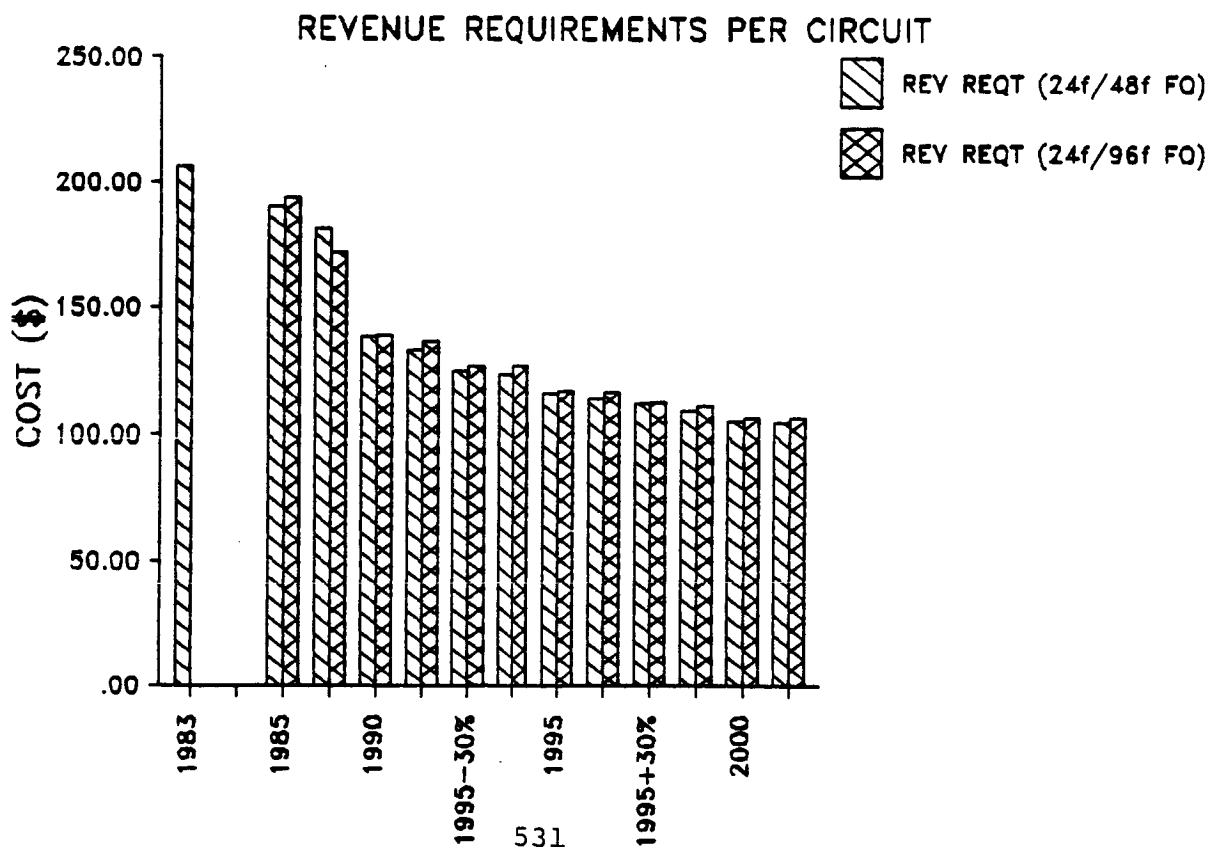
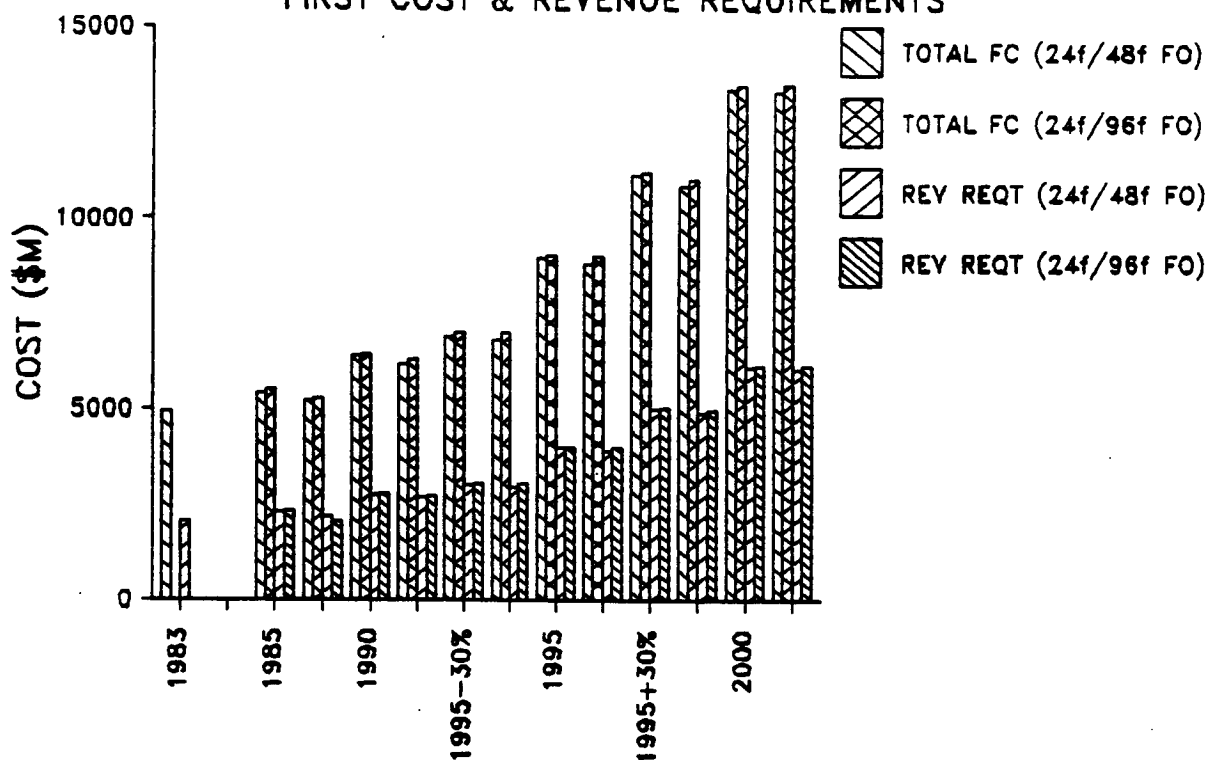


EXHIBIT 6.124: 15 NODE NETWORK-REVENUE REQ'TS SUMMARY-REGULATED

Node Network: 48f or 96f FO Cable, various transmission rates
LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC	2668829						
Erlangs	1514561	1825479	3042466	3652293	5217561	6782830	8747088

48f FO CA	405 mbps	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps
REV REQ	2126091	2402101	2888609	3164323	4162893	5202842	6334063
\$000/mi	33	37	45	49	64	81	98
\$/cct-mi	.013	.012	.009	.008	.007	.007	.007
\$/cct	199.51	187.02	134.94	123.14	113.40	109.02	102.92
\$/minute	.006	.006	.004	.004	.003	.003	.003

48f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps
REV REQ	2280087	2814686	3129572	4115251	5100832	6312251	
\$000/mi	35	44	48	64	79	98	
\$/cct-mi	.012	.009	.008	.007	.007	.007	
\$/cct	177.52	131.49	121.79	112.10	106.88	102.57	
\$/minute	.005	.004	.004	.003	.003	.003	

96f FO CA	405 mbps	810 mbps	1.7 gbps	1.7 gbps	1.7 gbps	4.05 gbps	
REV REQ	2495420	2985968	3278848	4264320	5301197	6459636	
\$000/mi	39	46	51	66	82	100	
\$/cct-mi	.013	.009	.008	.008	.007	.007	
\$/cct	194.29	139.49	127.60	116.16	111.08	104.96	
\$/minute	.006	.004	.004	.003	.003	.003	

96f FO CA	565 mbps	1.7 gbps	4.05 gbps	4.05 gbps	4.05 gbps	8.1 gbps	
REV REQ	2347399	2955899	3289217	4274896	5259187	6471896	
\$000/mi	36	46	51	66	81	100	
\$/cct-mi	.012	.009	.008	.008	.007	.007	
\$/cct	182.76	138.08	128.00	116.45	110.20	105.16	
\$/minute	.005	.004	.004	.003	.003	.003	

EXHIBIT 6.124A:15 NODE NETWORK—REGULATED FIRST COST & REVENUE REQUIREMENTS

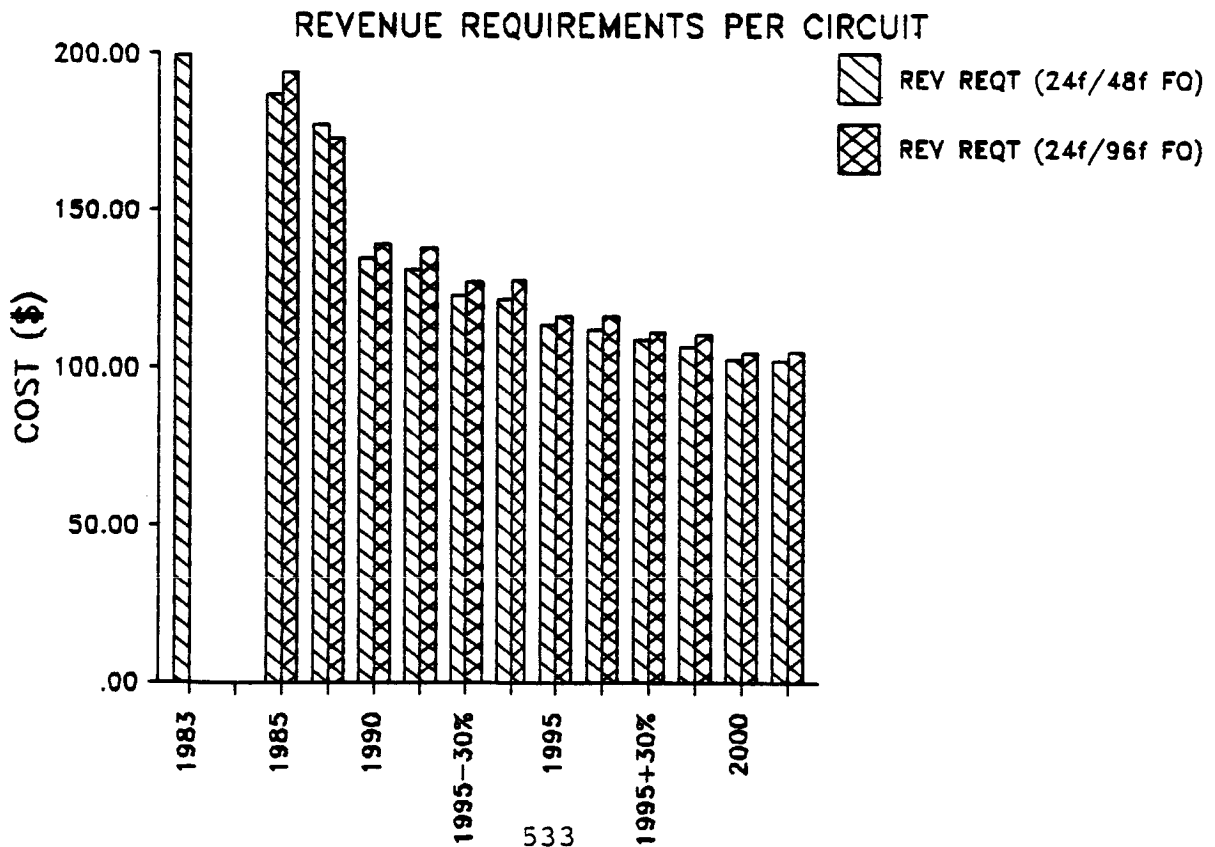
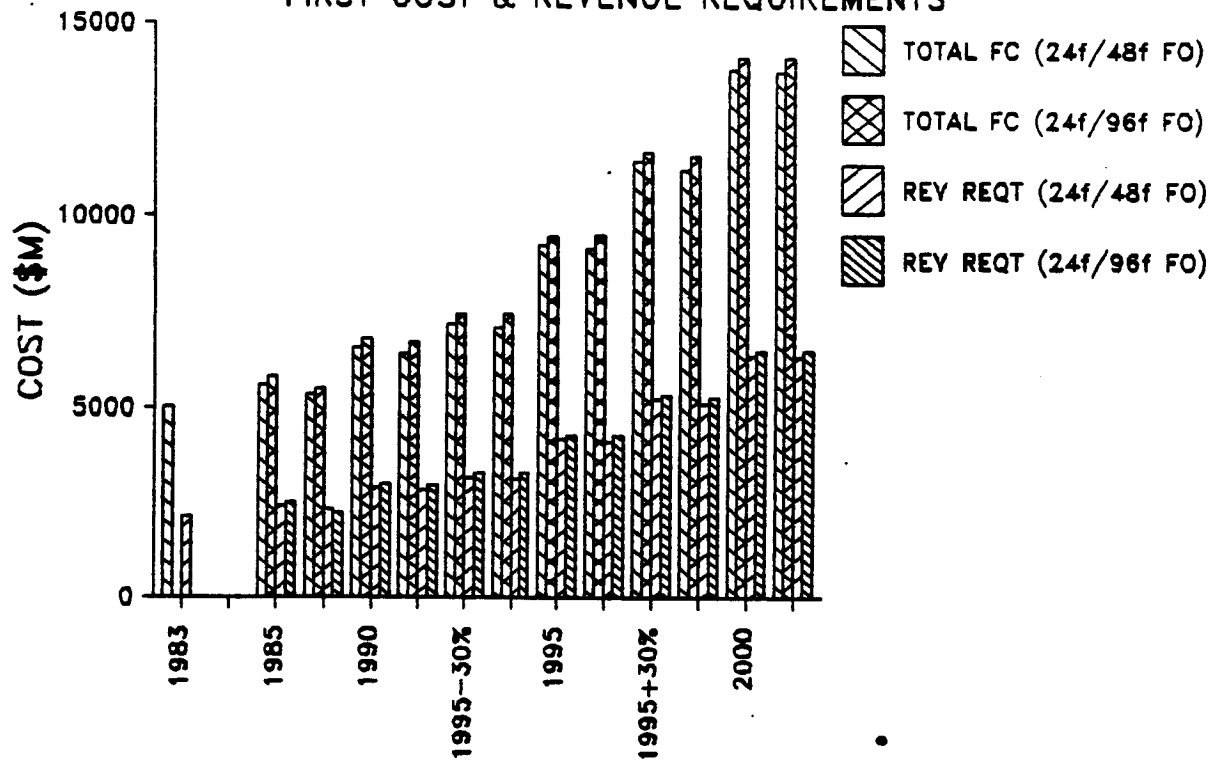


EXHIBIT 6.125: 17 NODE NETWORK-REVENUE REQ'TS SUMMARY-REGULATED

Node Network: 48f or 96f FO Cable, various transmission rates
 LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC							
2830397							
Erlangs	1606250	1935991	3226652	3873398	5533426	7193453	9276626

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2158138	2443214	3006210	3283652	4381785	5526501	6723662
\$000/mi	36	41	50	55	73	92	112
\$/cct-mi	.014	.013	.010	.009	.008	.008	.008
\$/cct	182.97	171.86	126.87	115.44	107.84	104.62	98.70
\$/minute	.006	.005	.004	.004	.003	.003	.003

48f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2311030	2921684	3279220	4344433	5420524	6729650	
\$000/mi	39	49	55	72	90	112	
\$/cct-mi	.013	.009	.009	.008	.008	.008	
\$/cct	162.56	123.31	115.29	106.92	102.62	98.79	
\$/minute	.005	.004	.004	.003	.003	.003	

96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2528193	3091270	3436918	4510891	5589105	6885344	
\$000/mi	42	52	57	75	93	115	
\$/cct-mi	.014	.010	.009	.009	.008	.008	
\$/cct	177.83	130.46	120.83	111.01	105.81	101.08	
\$/minute	.006	.004	.004	.003	.003	.003	

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2384879	3083366	3448156	4513369	5584129	6898585	
\$000/mi	40	51	58	75	93	115	
\$/cct-mi	.013	.010	.009	.009	.008	.008	
\$/cct	167.75	130.13	121.23	111.07	105.71	101.27	
\$/minute	.005	.004	.004	.003	.003	.003	

EXHIBIT 6.125A:17 NODE NETWORK—REGULATED FIRST COST & REVENUE REQUIREMENTS

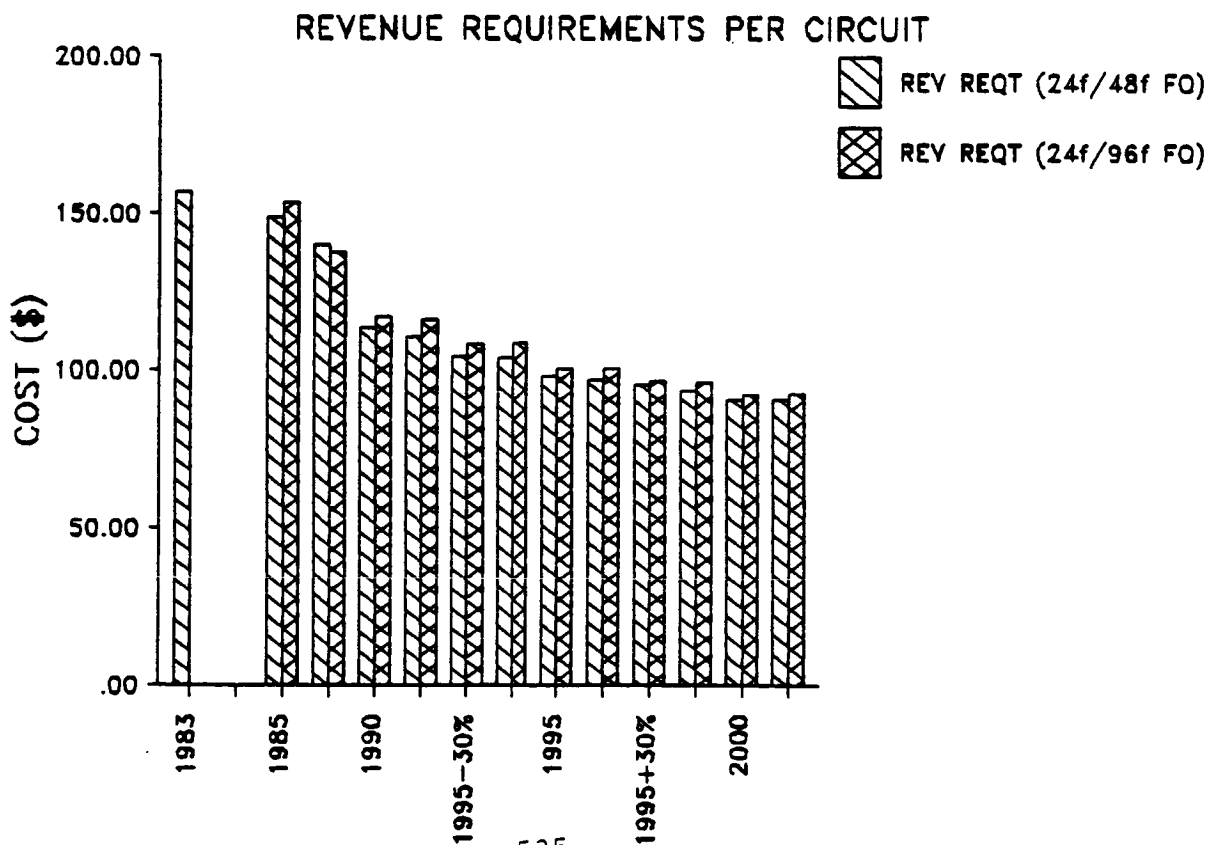
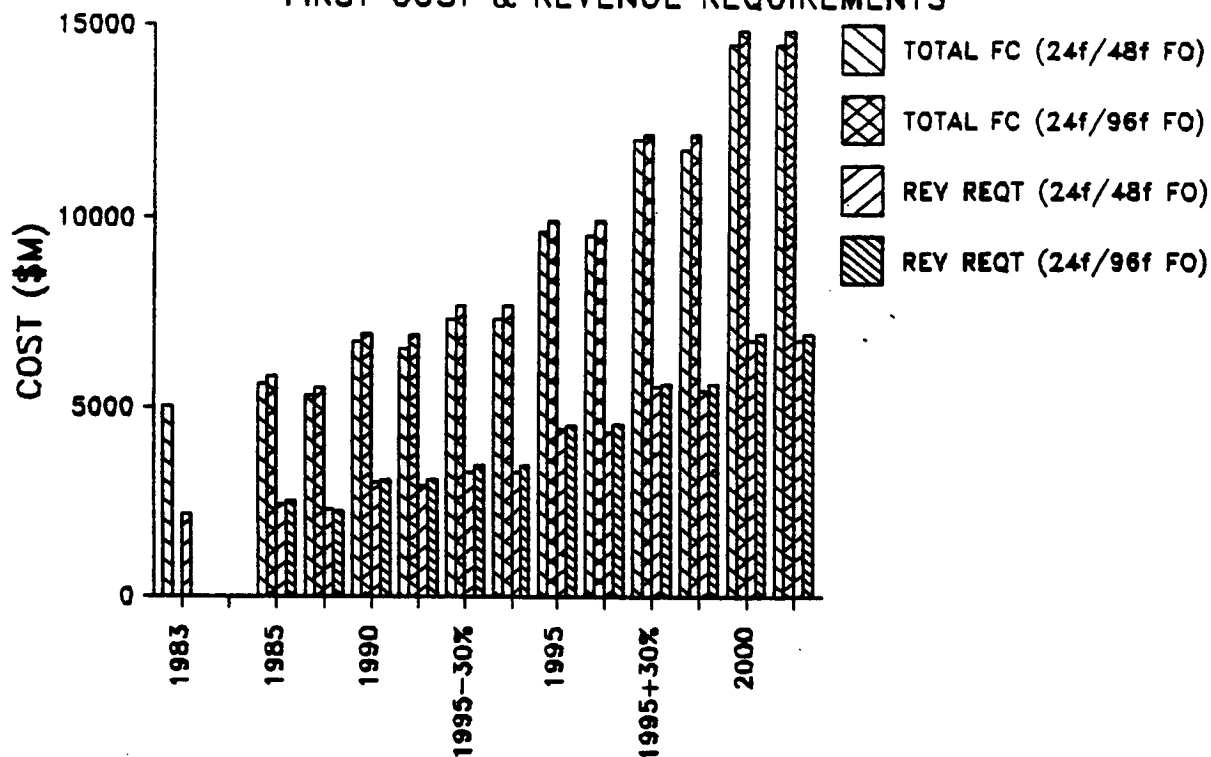


EXHIBIT 6.126: 23 NODE NETWORK-REVENUE REQ'TS SUMMARY-REGULATED

Node Network: 48f or 96f FO Cable, various transmission rates
LATA Access: 24f FO Cable, 405 mbps transmission rate

YEAR	1983	1985	1990	1995-30%	1995	1995+30%	2000
NODE NETWORK							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.15						
Init Fill	.8						
LATA ACCESS							
Tr Factor	.5675	.684	1.14	1.3685	1.955	2.5415	3.2775
Mi Factor	1.35						
Init Fill	.8						
TRAFFIC	2914262						
Erlangs	1653844	1993355	3322259	3988168	5697383	7406598	9551495

48f FO CA 405 mbps 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2198709	2515381	3199058	3539546	4759466	6003662	7366352
\$000/mi	39	44	56	62	84	106	130
\$/cct-mi	.017	.016	.012	.011	.011	.010	.010
\$/cct	156.81	148.84	113.58	104.68	98.53	95.61	90.97
\$/minute	.006	.005	.004	.004	.004	.003	.003

48f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2371924	3125555	3525393	4705106	5894937	7354035
\$000/mi	42	55	62	83	104	130
\$/cct-mi	.015	.012	.011	.011	.010	.010
\$/cct	140.35	110.97	104.26	97.41	93.88	90.81
\$/minute	.005	.004	.004	.004	.003	.003

96f FO CA 405 mbps 810 mbps 1.7 gbps 1.7 gbps 1.7 gbps 4.05 gbps

REV REQ	2595218	3298785	3680209	4872940	6082878	7507015
\$000/mi	46	58	65	86	107	132
\$/cct-mi	.017	.013	.012	.011	.010	.010
\$/cct	153.56	117.12	108.84	100.88	96.87	92.70
\$/minute	.006	.004	.004	.004	.004	.003

96f FO CA 565 mbps 1.7 gbps 4.05 gbps 4.05 gbps 4.05 gbps 8.1 gbps

REV REQ	2445391	3280413	3692595	4872308	6057049	7521237
\$000/mi	43	58	65	86	107	132
\$/cct-mi	.016	.013	.012	.011	.010	.010
\$/cct	144.70	116.46	109.21	100.87	96.46	92.88
\$/minute	.005	.004	.004	.004	.003	.003

EXHIBIT 6.126A:23 NODE NETWORK—REGULATED

FIRST COST & REVENUE REQUIREMENTS

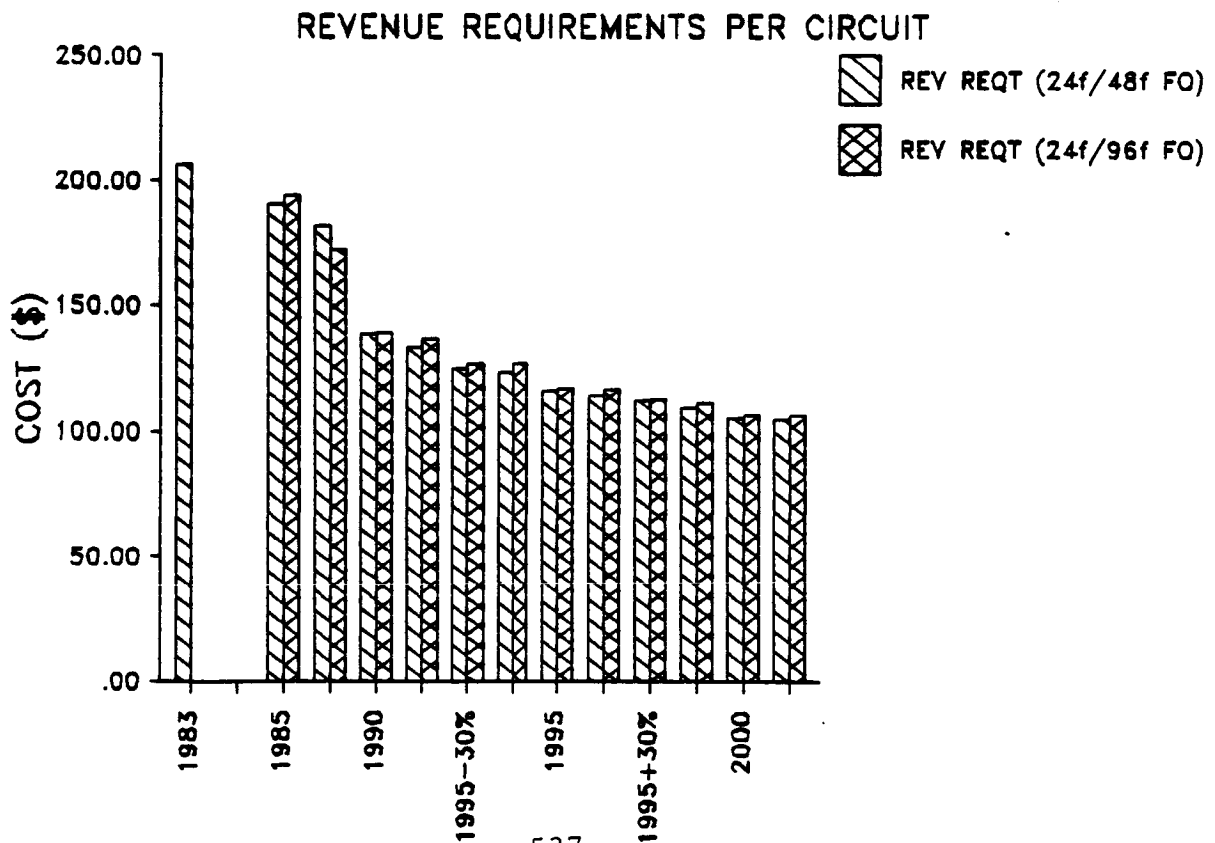
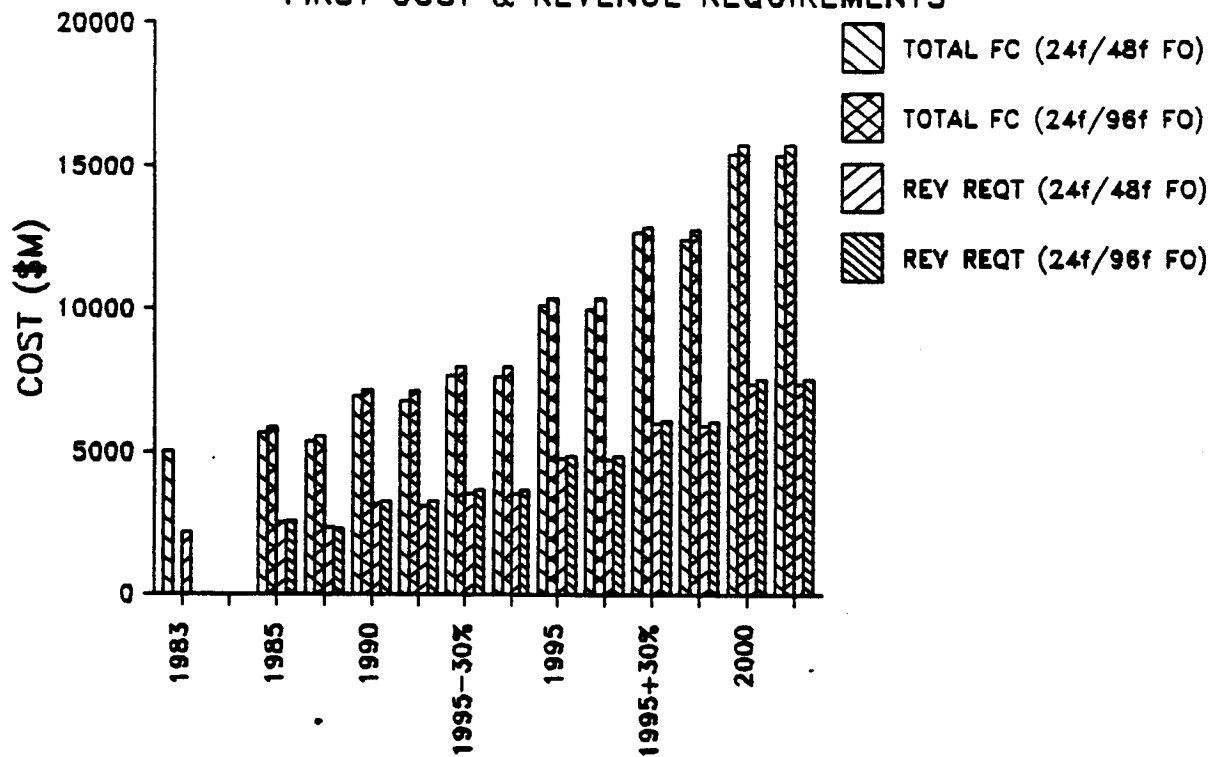
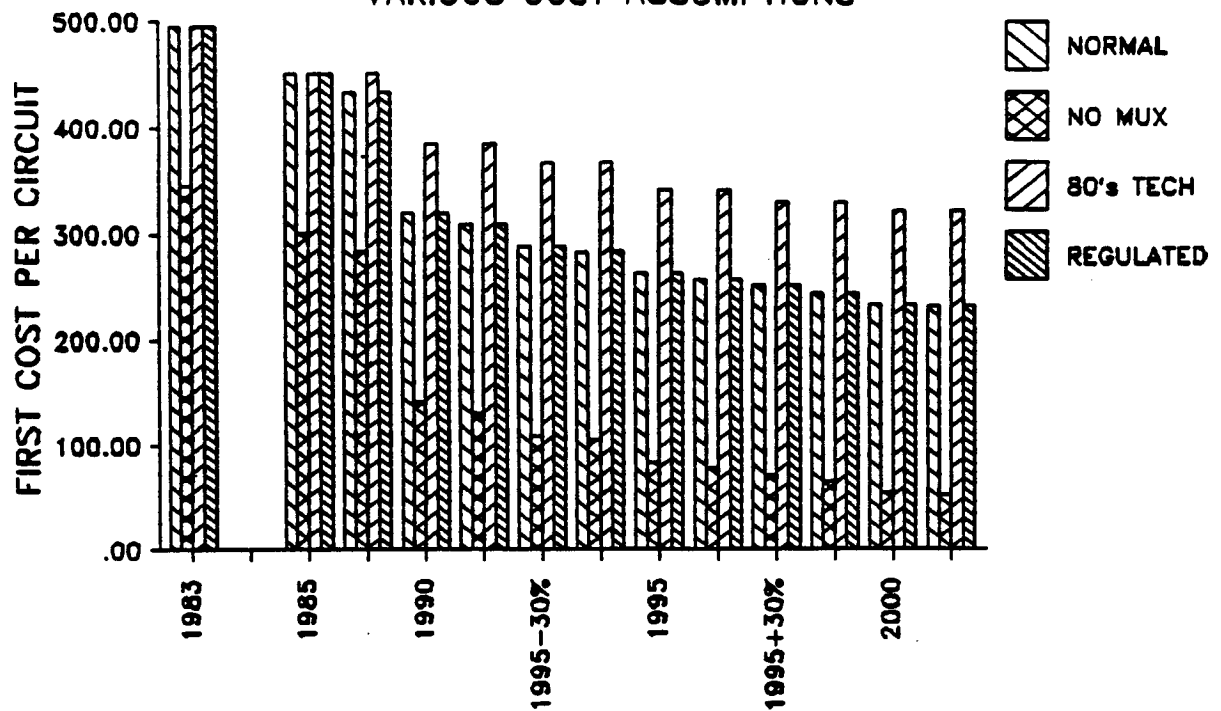


EXHIBIT 6.127:11 NODE NETWORK-COMBINED VARIOUS COST ASSUMPTIONS



24f/48f FO CABLE

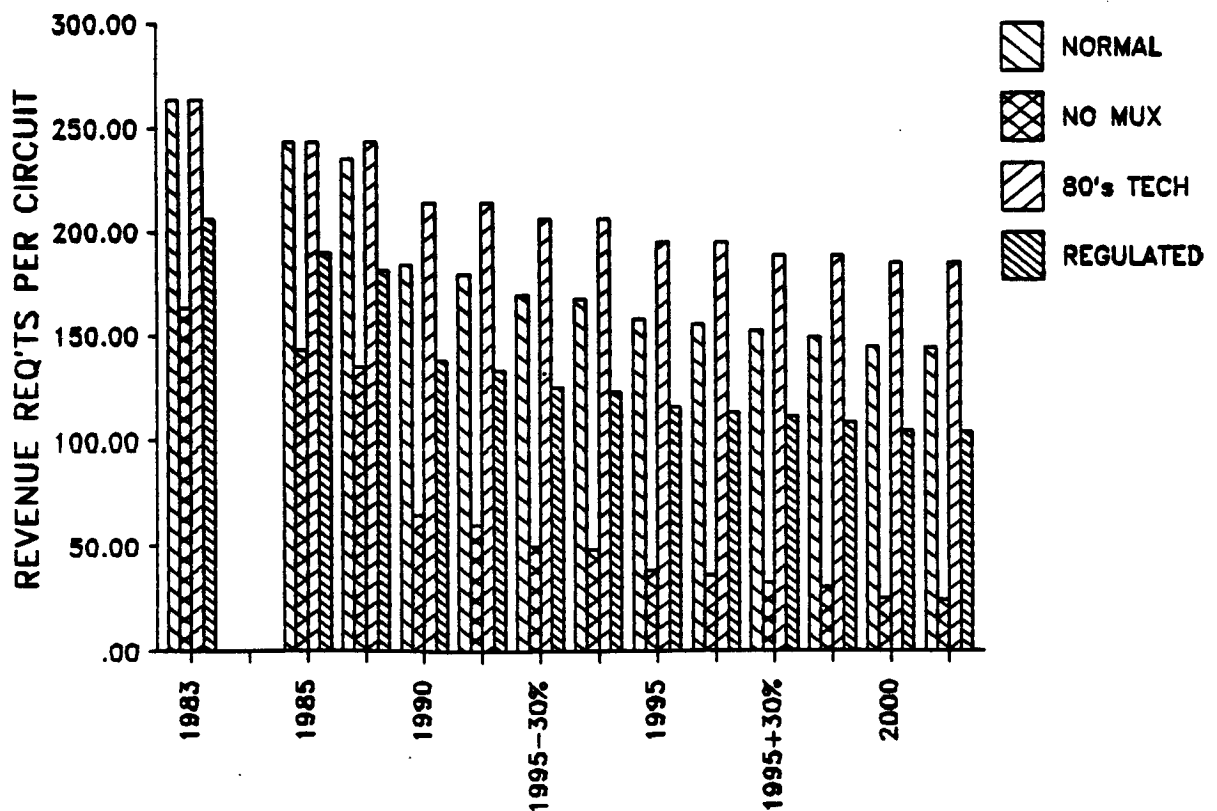
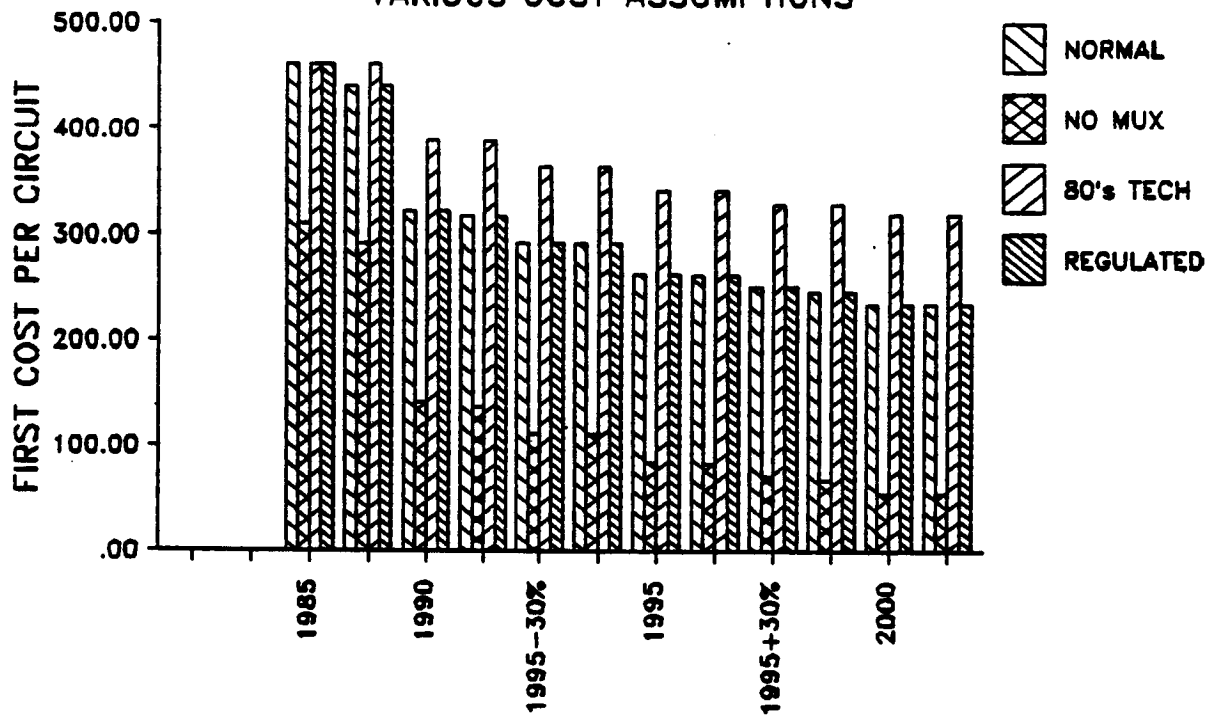


EXHIBIT 6.128:11 NODE NETWORK-COMBINED

VARIOUS COST ASSUMPTIONS



24f/96f FO CABLE

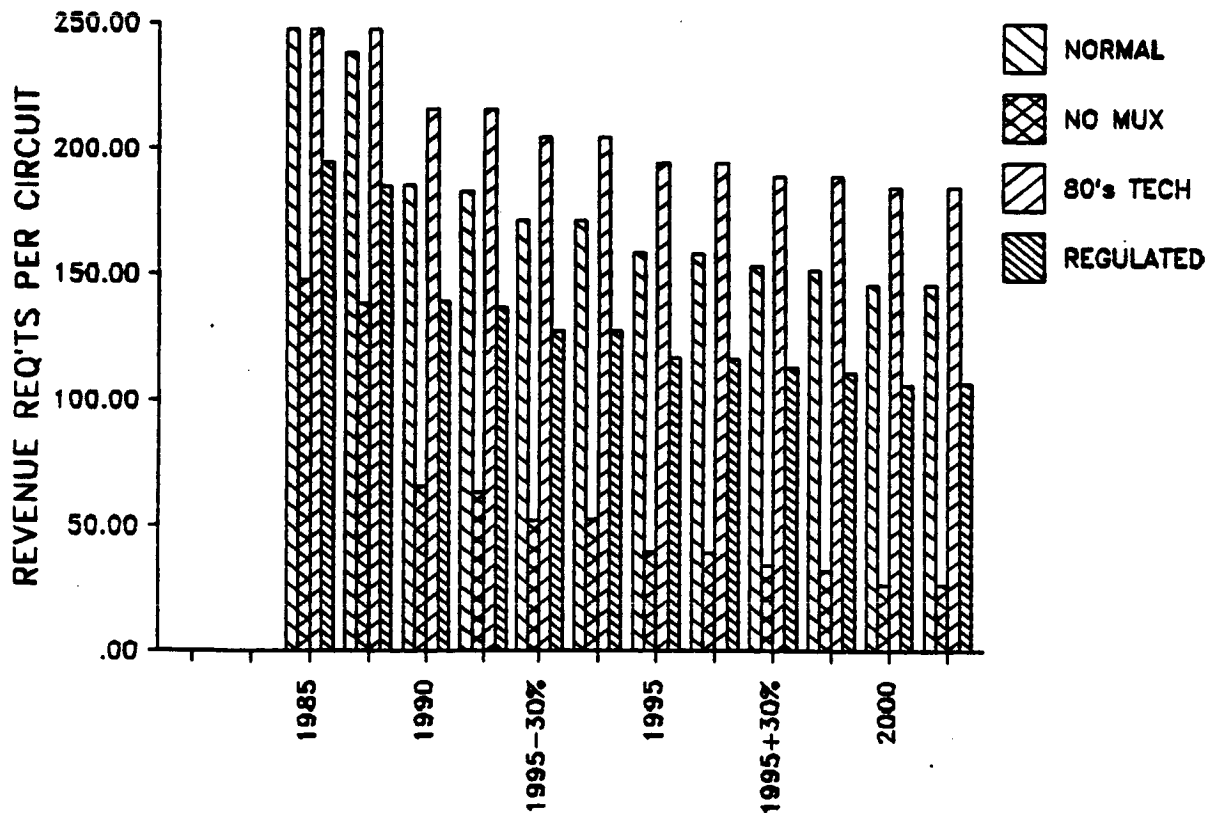
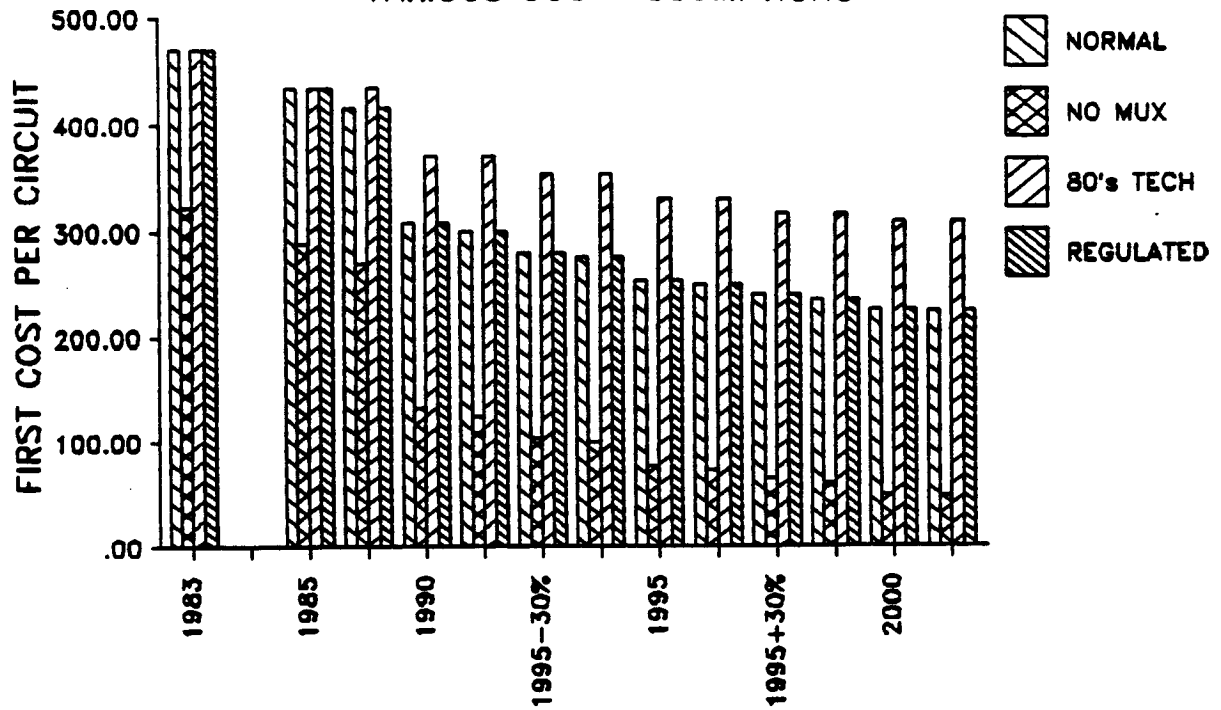


EXHIBIT 6.129:15 NODE NETWORK-COMBINED

VARIOUS COST ASSUMPTIONS



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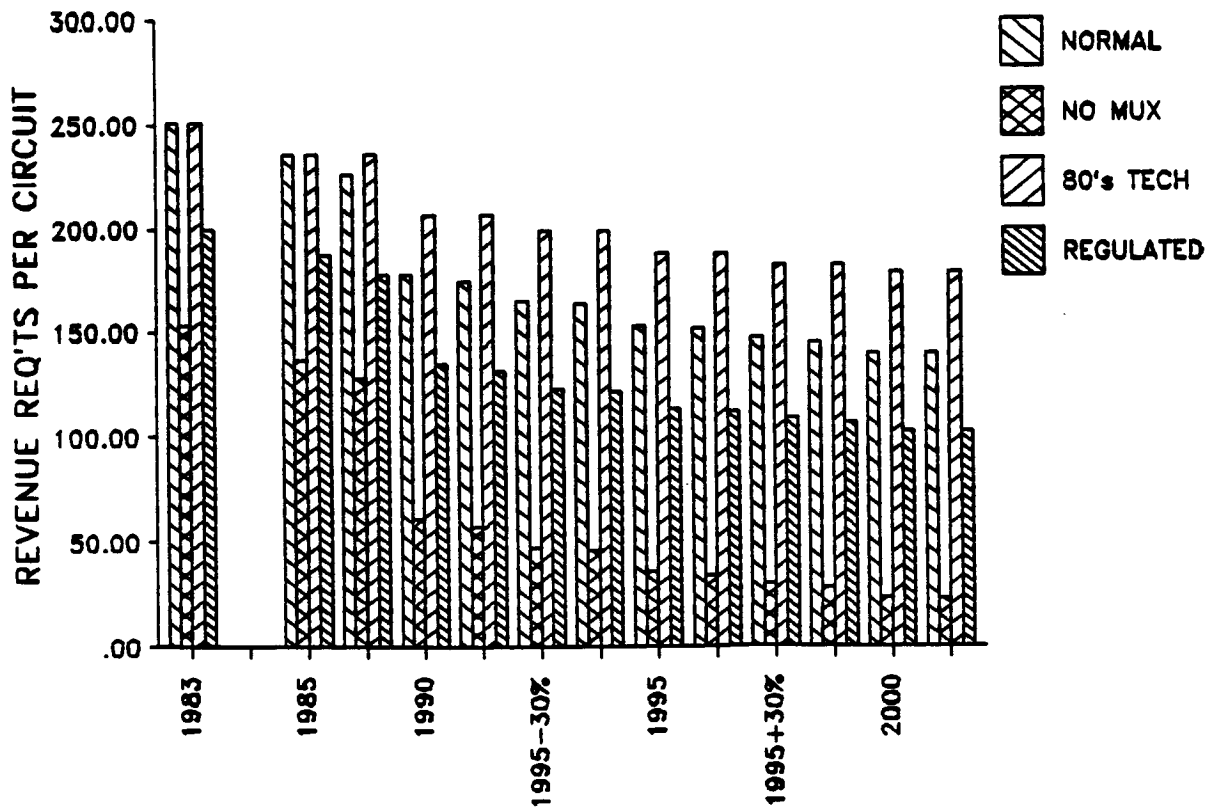
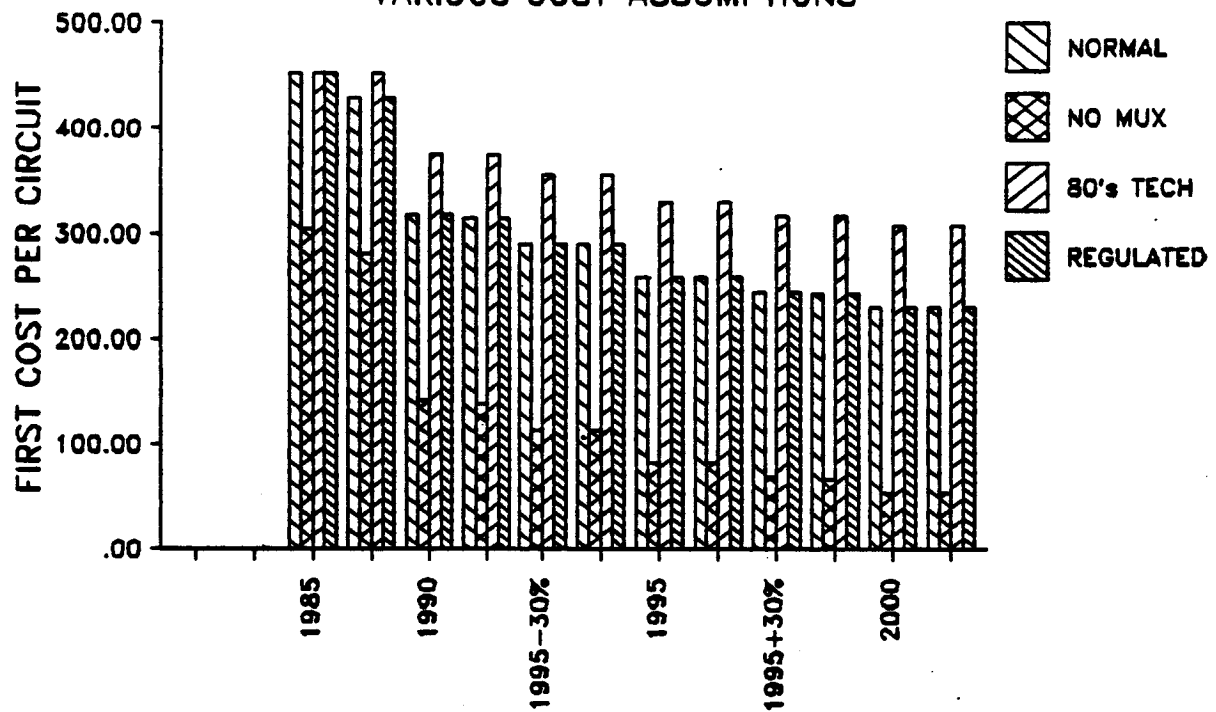


EXHIBIT 6.130:15 NODE NETWORK-COMBINED VARIOUS COST ASSUMPTIONS



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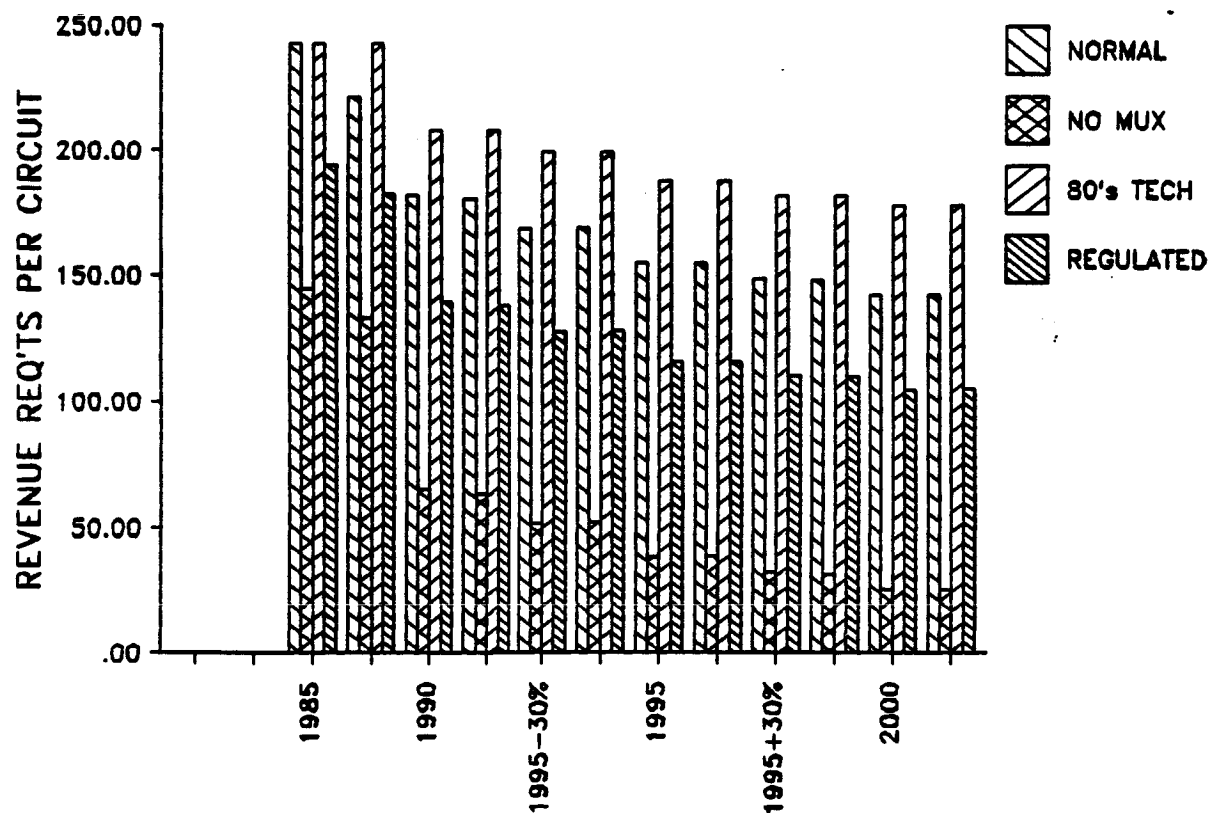
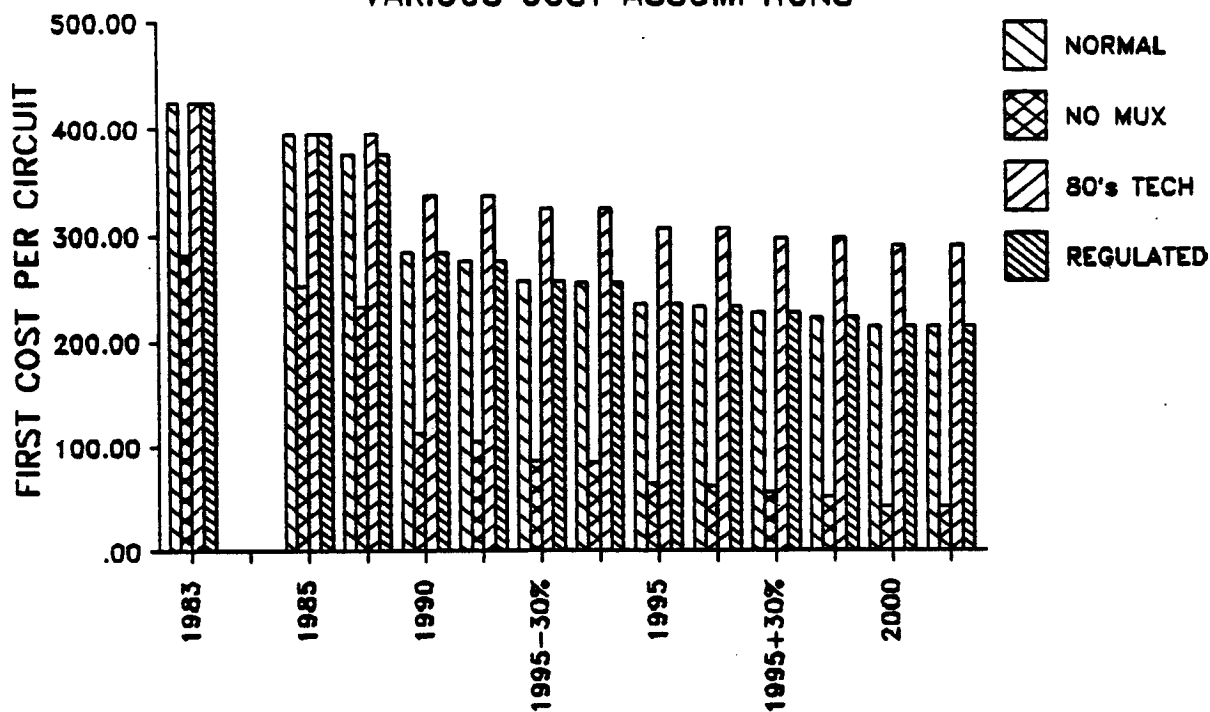
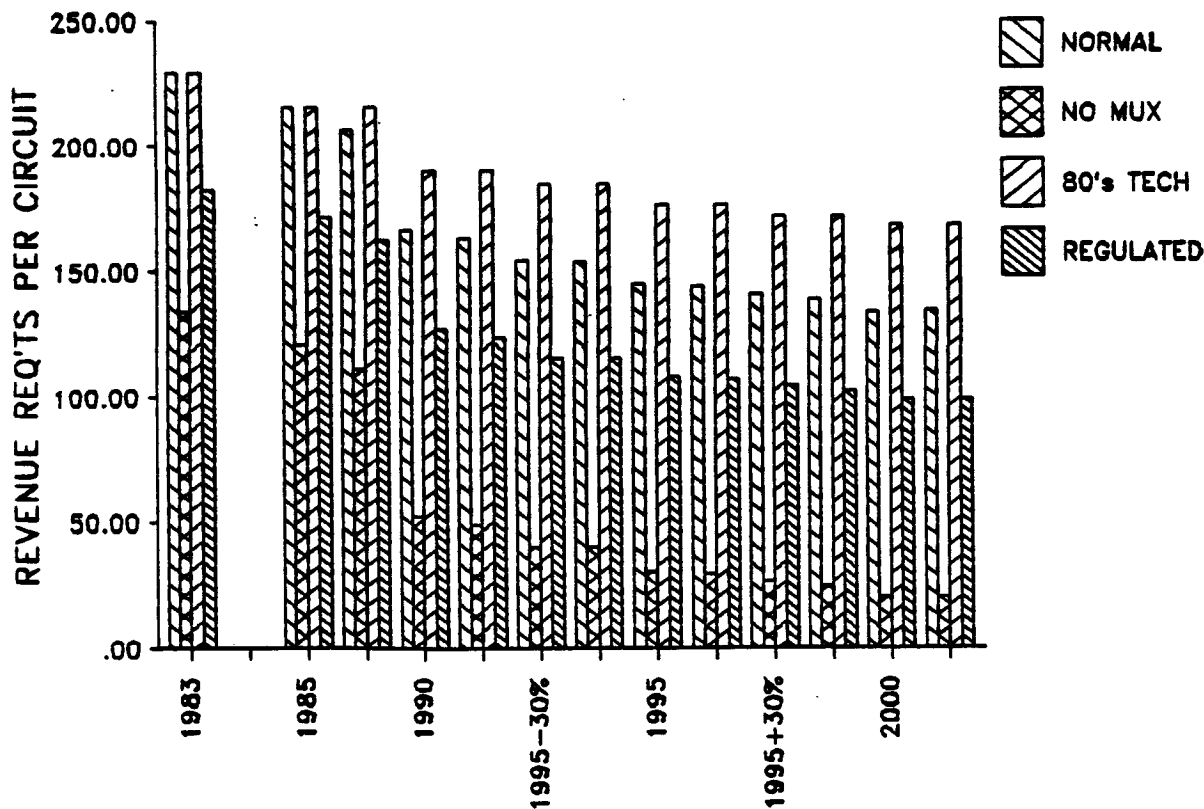


EXHIBIT 6.131:17 NODE NETWORK-COMBINED VARIOUS COST ASSUMPTIONS

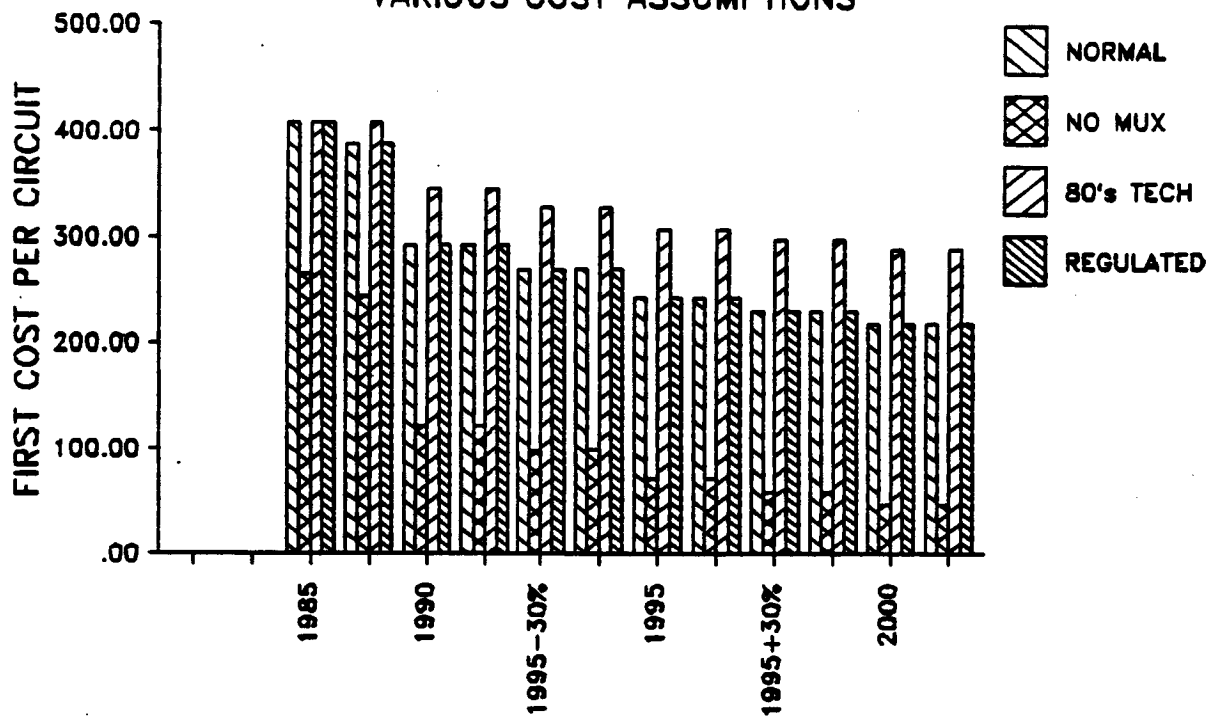


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EXHIBIT 6.132:17 NODE NETWORK-COMBINED VARIOUS COST ASSUMPTIONS



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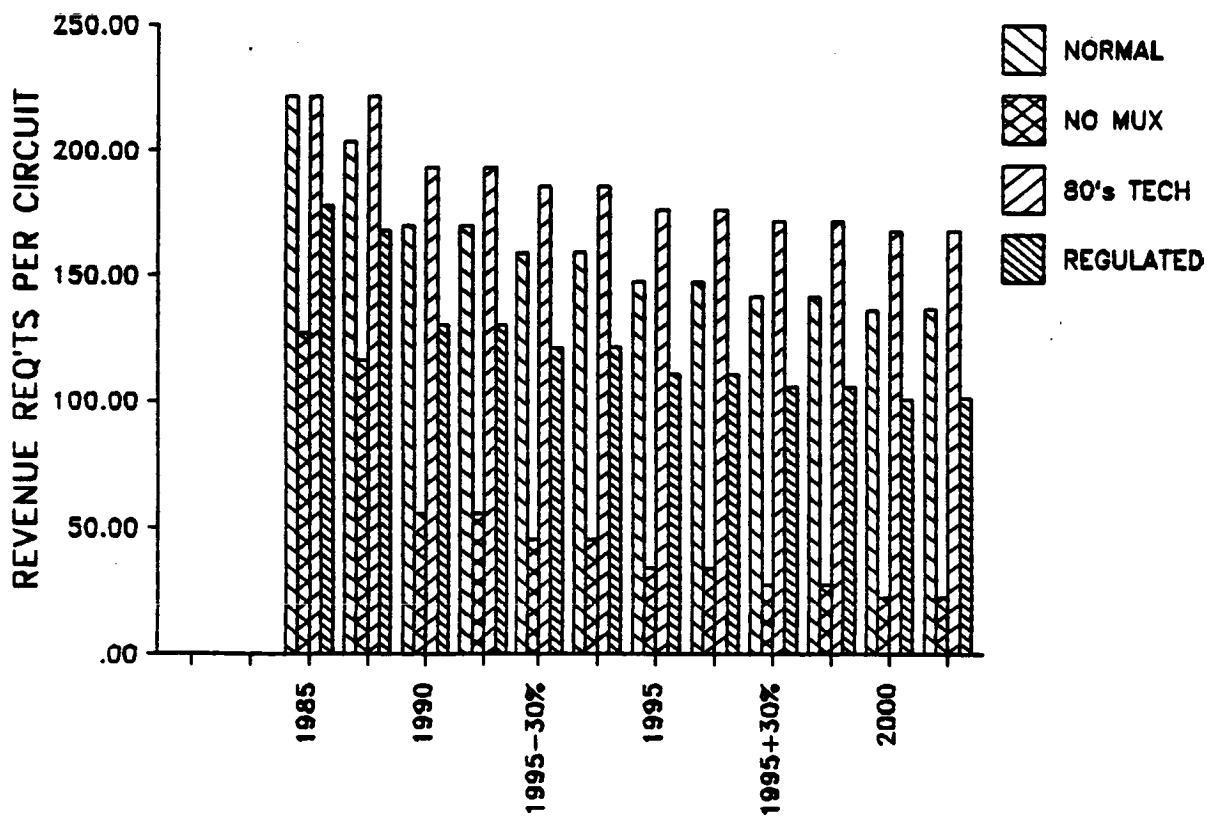


EXHIBIT 6.133:23 NODE NETWORK-COMBINED

VARIOUS COST ASSUMPTIONS

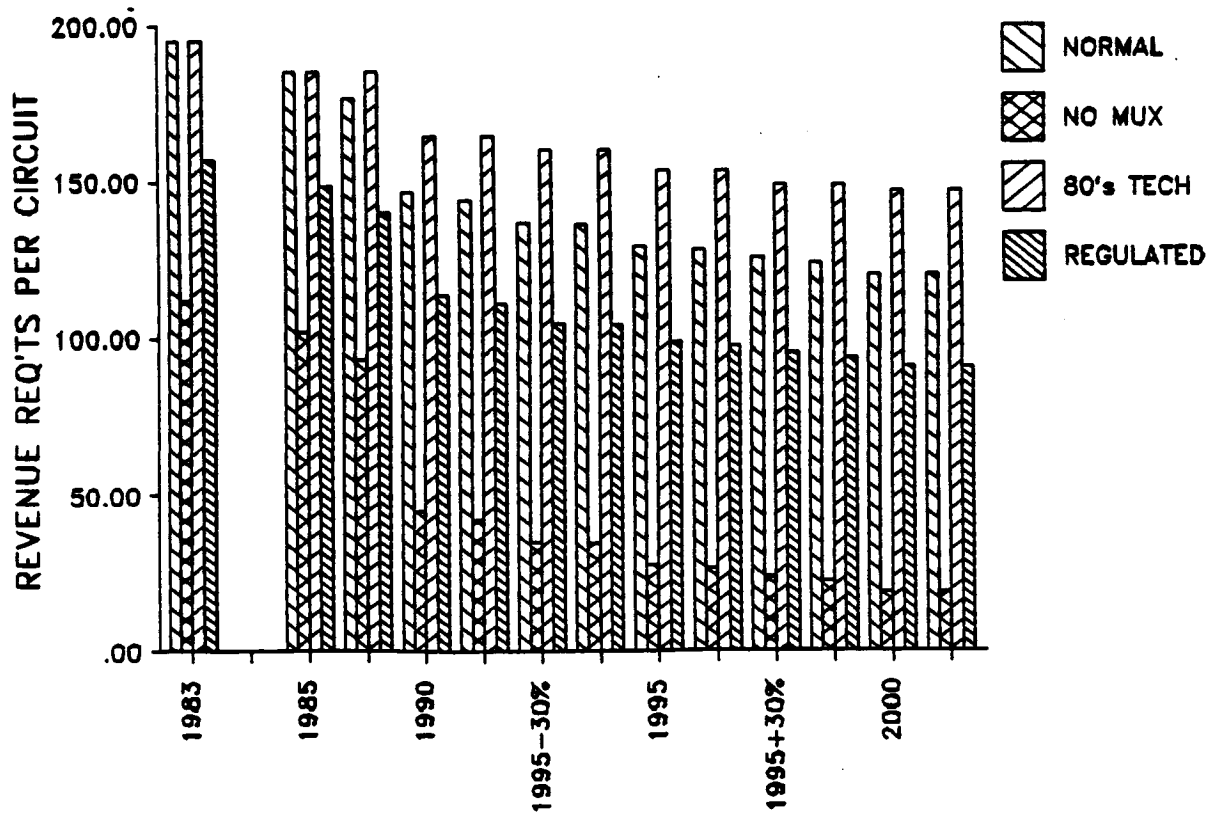
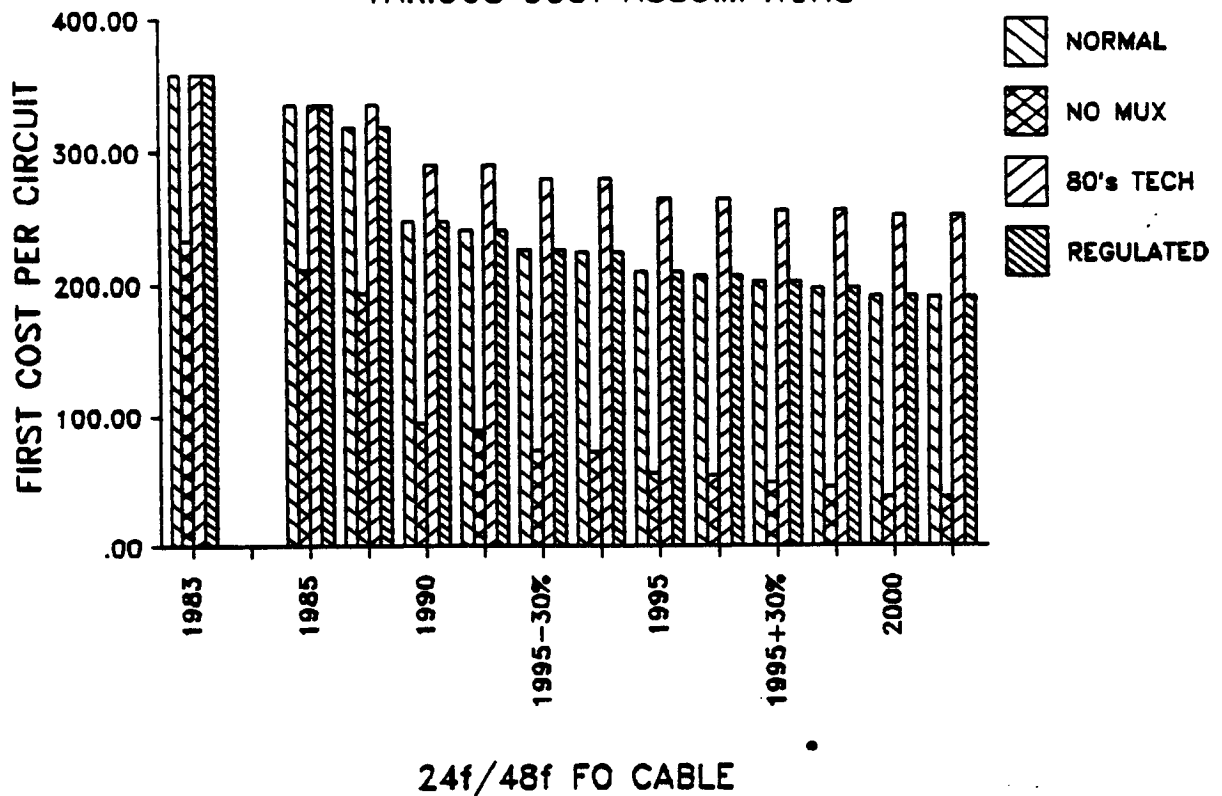
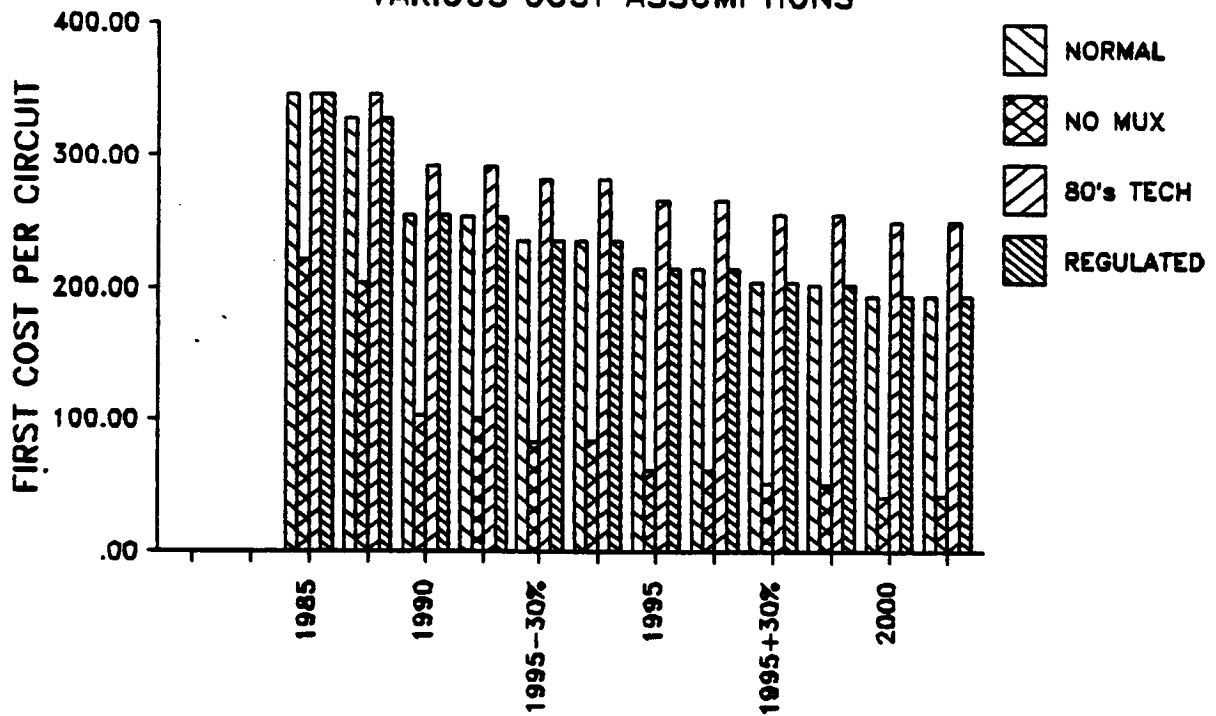


EXHIBIT 6.134:23 NODE NETWORK-COMBINED VARIOUS COST ASSUMPTIONS



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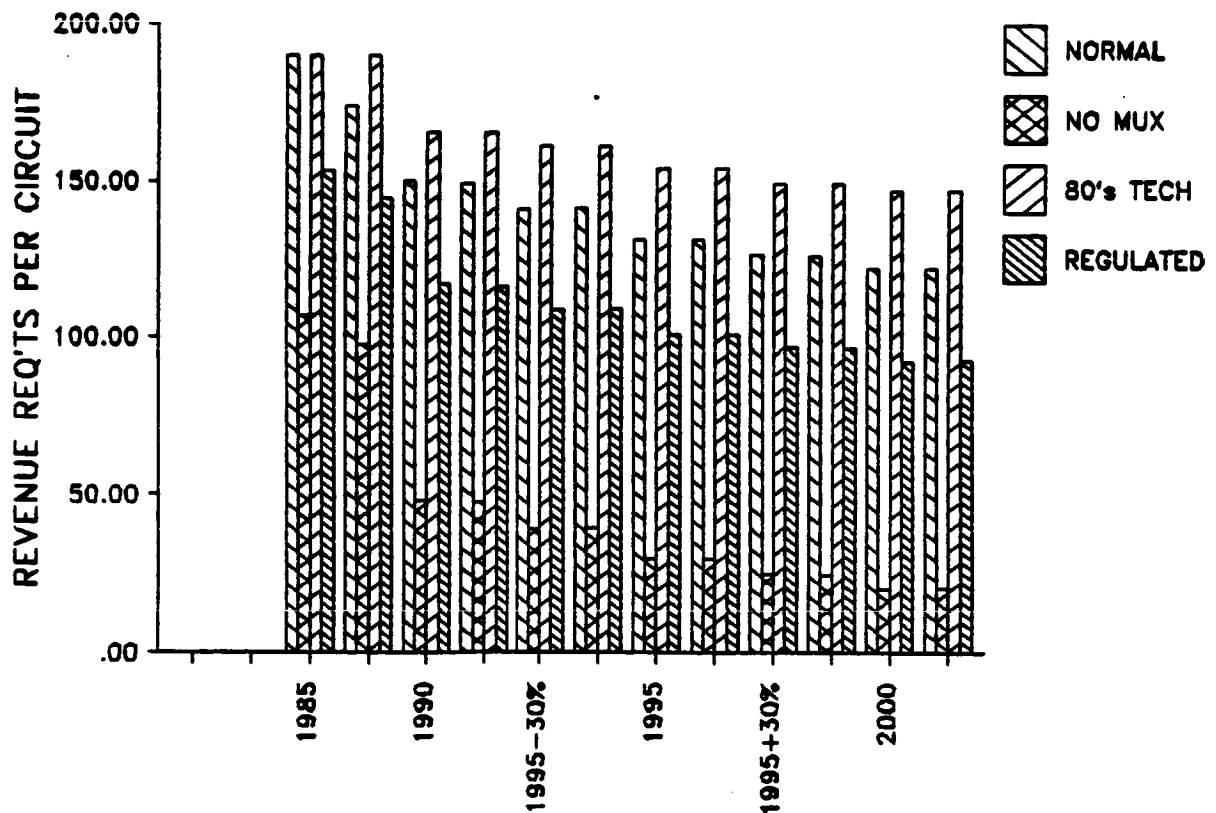
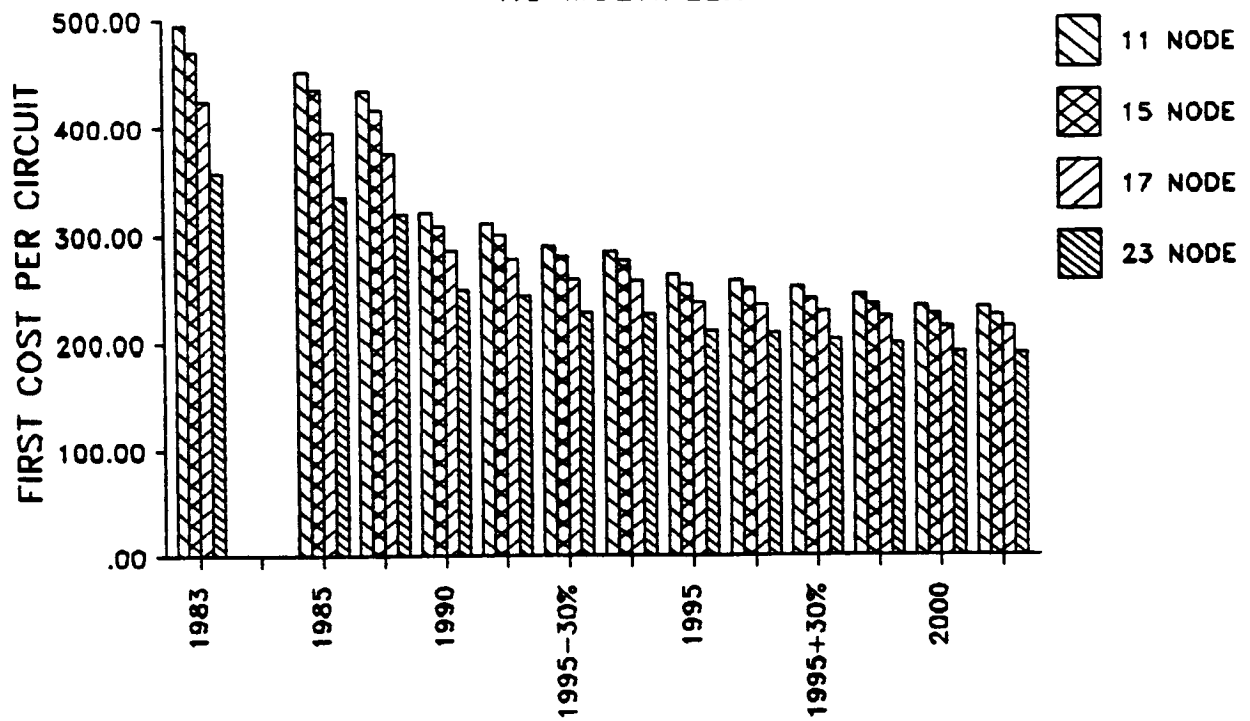


EXHIBIT 6.135: COMBINED NETWORKS

NO MULTIPLEX



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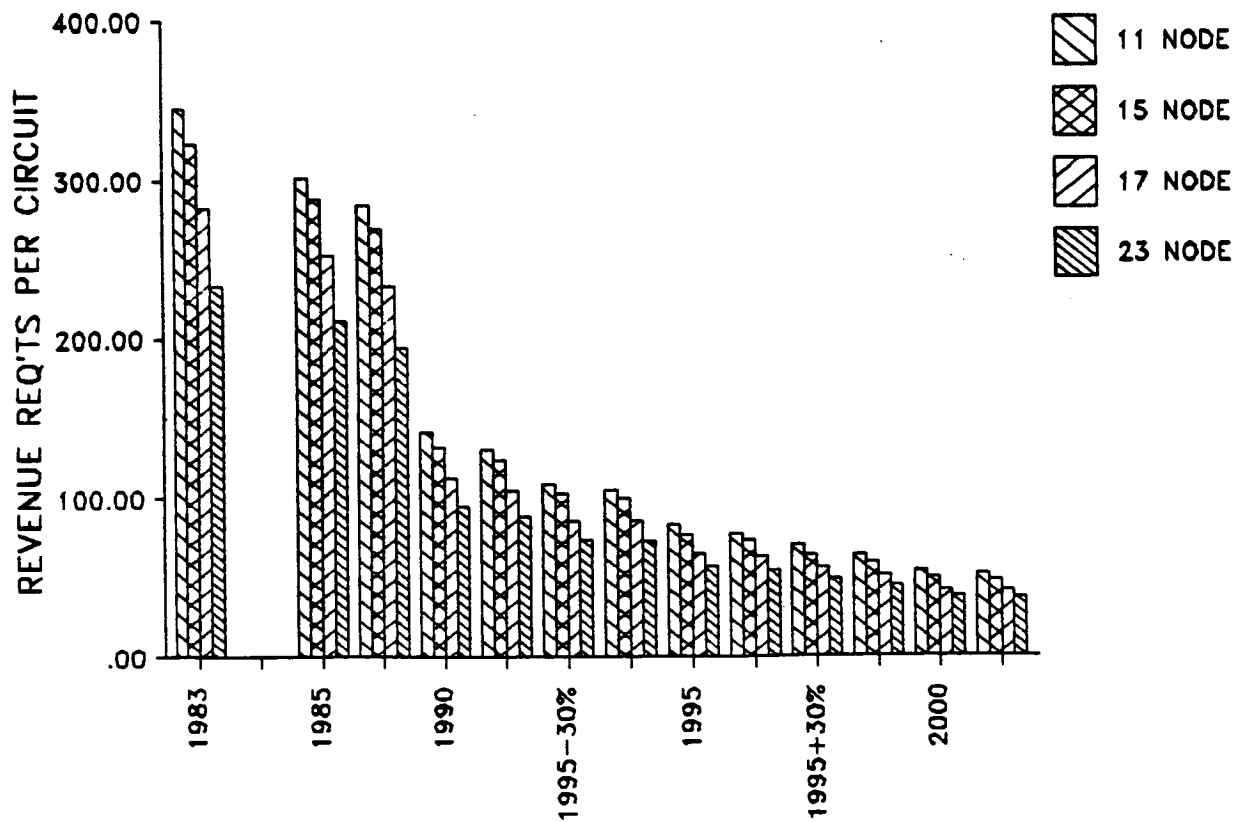
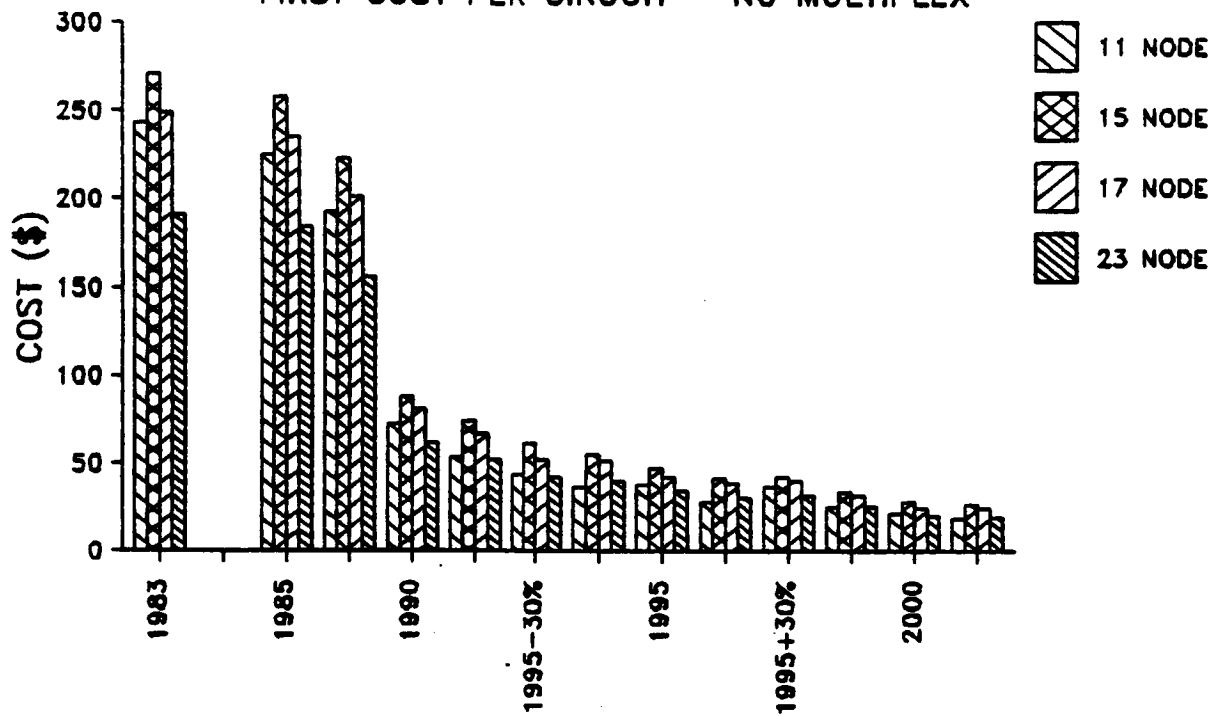


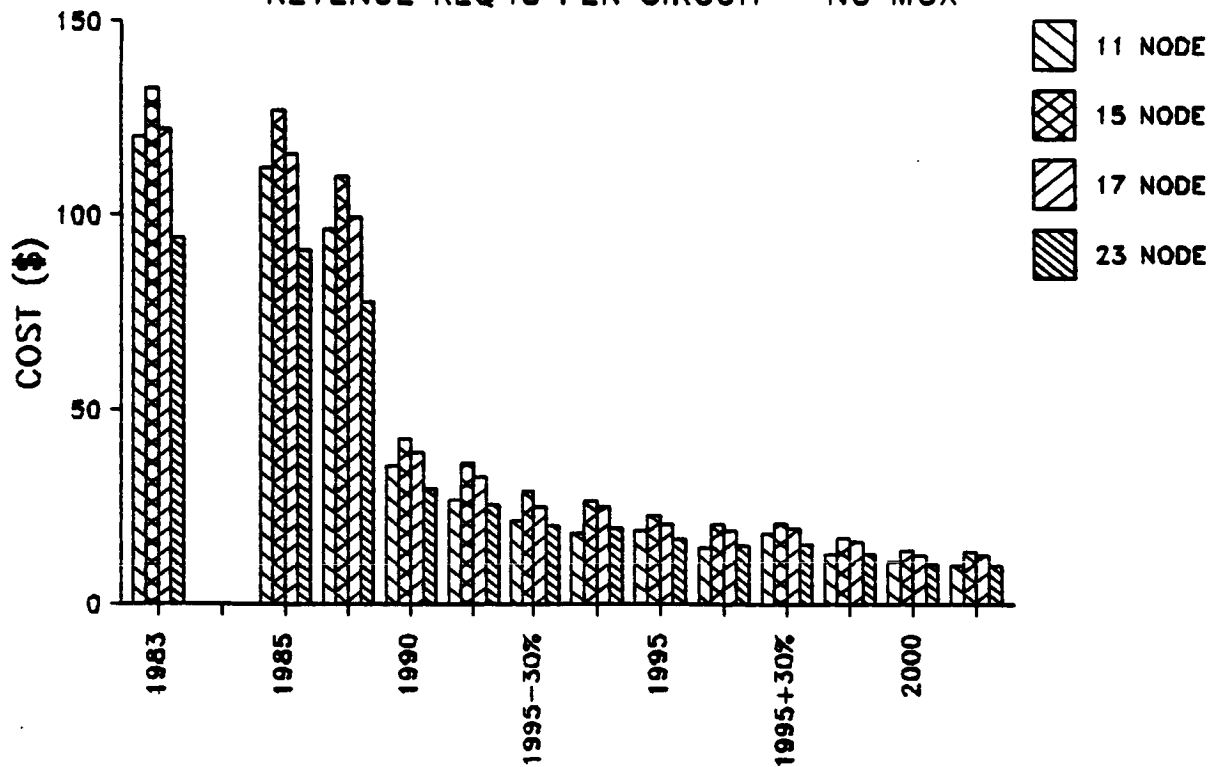
EXHIBIT 6.135A: NODE NETWORKS

FIRST COST PER CIRCUIT - NO MULTIPLEX



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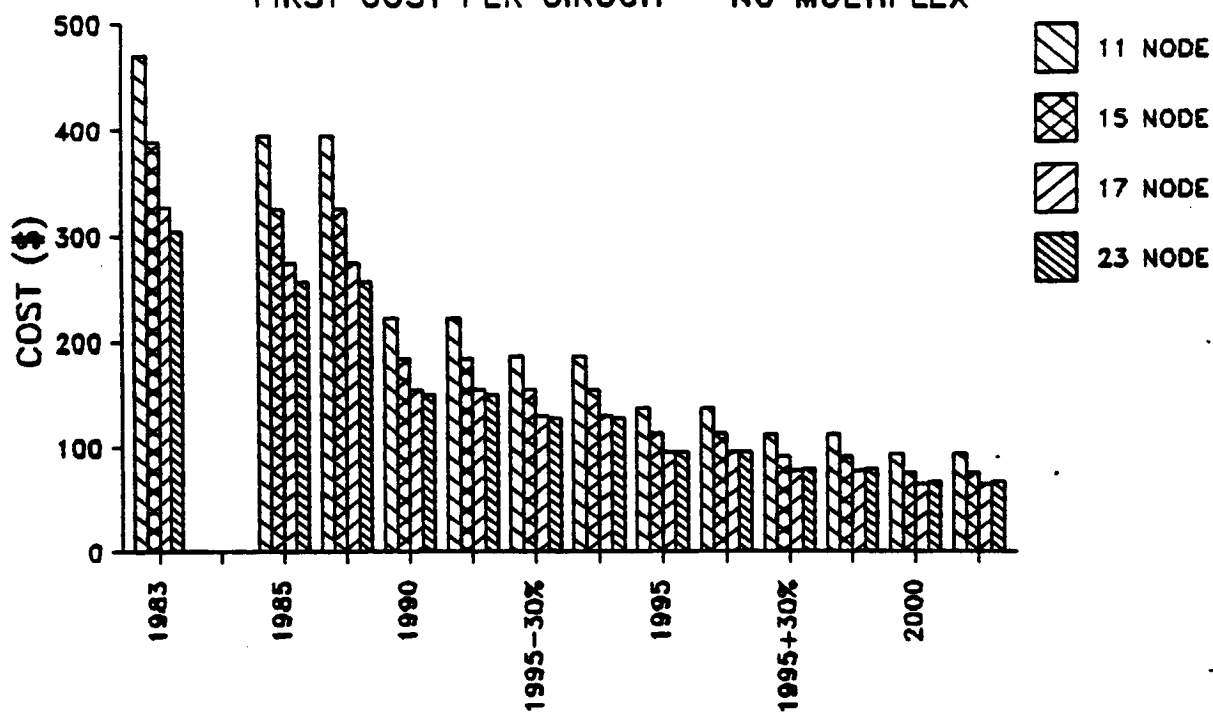
REVENUE REQ'TS PER CIRCUIT - NO MUX



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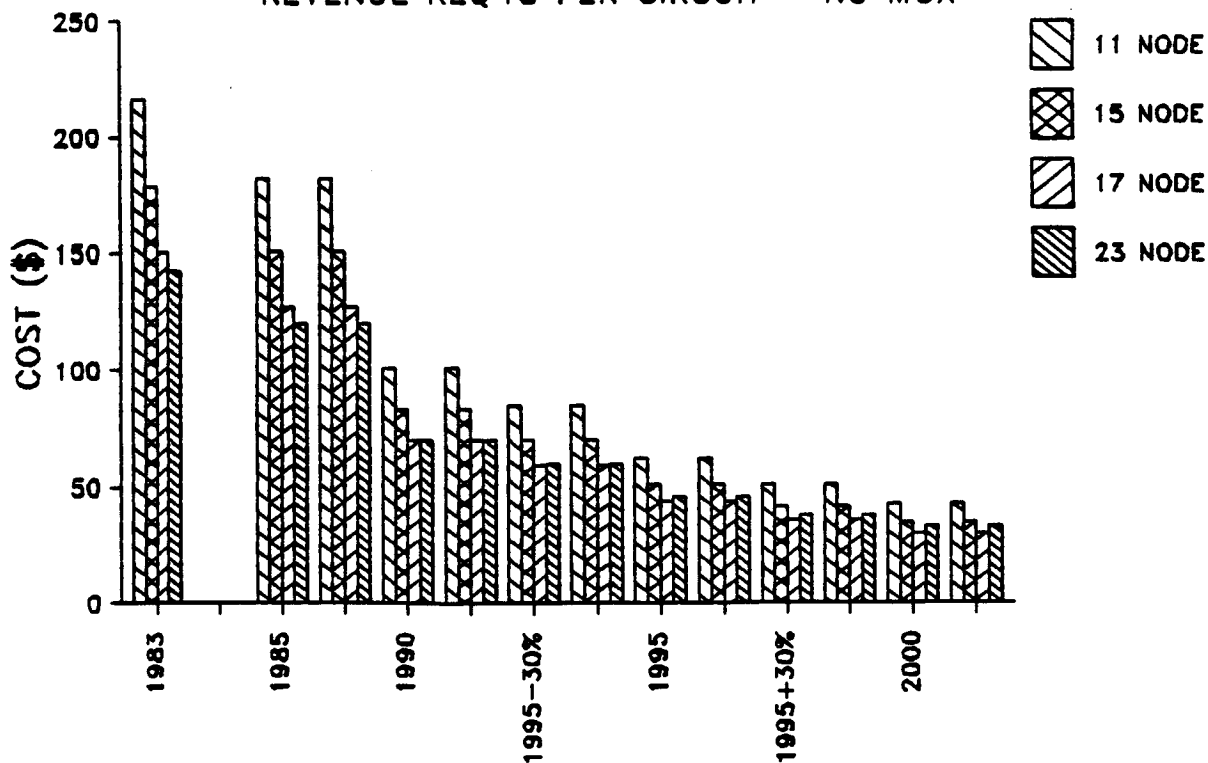
EXHIBIT 6.135B: LATA NETWORKS

FIRST COST PER CIRCUIT - NO MULTIPLEX



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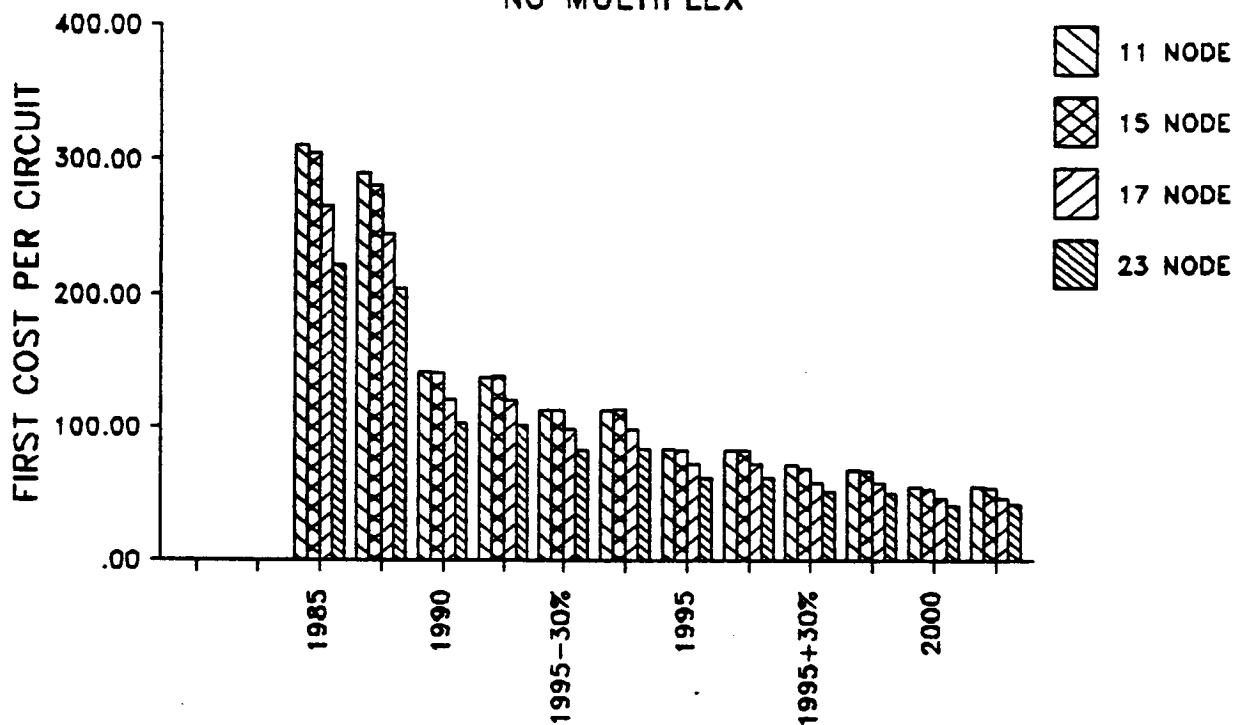
REVENUE REQ'TS PER CIRCUIT - NO MUX



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EXHIBIT 6.136: COMBINED NETWORKS

NO MULTIPLEX



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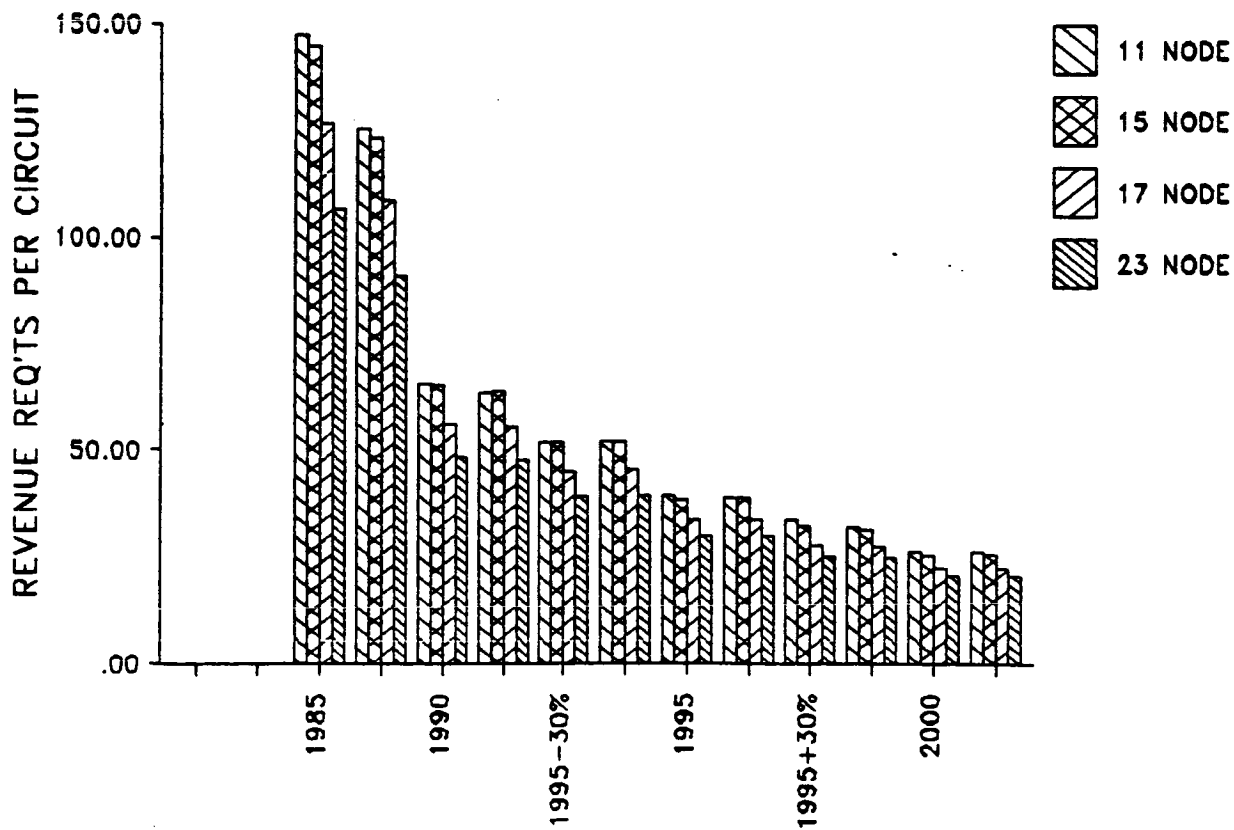
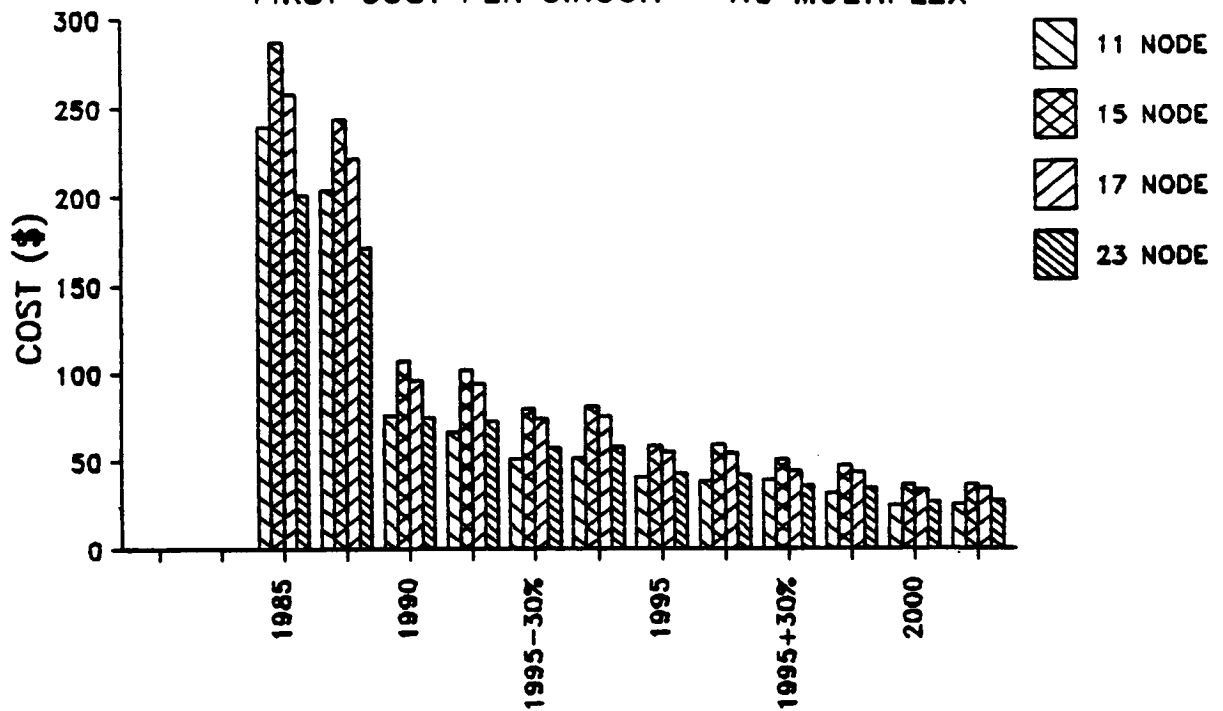


EXHIBIT 6.136A: NODE NETWORKS

FIRST COST PER CIRCUIT - NO MULTIPLEX



24f/96f FO CABLE

REVENUE REQ'TS PER CIRCUIT - NO MUX

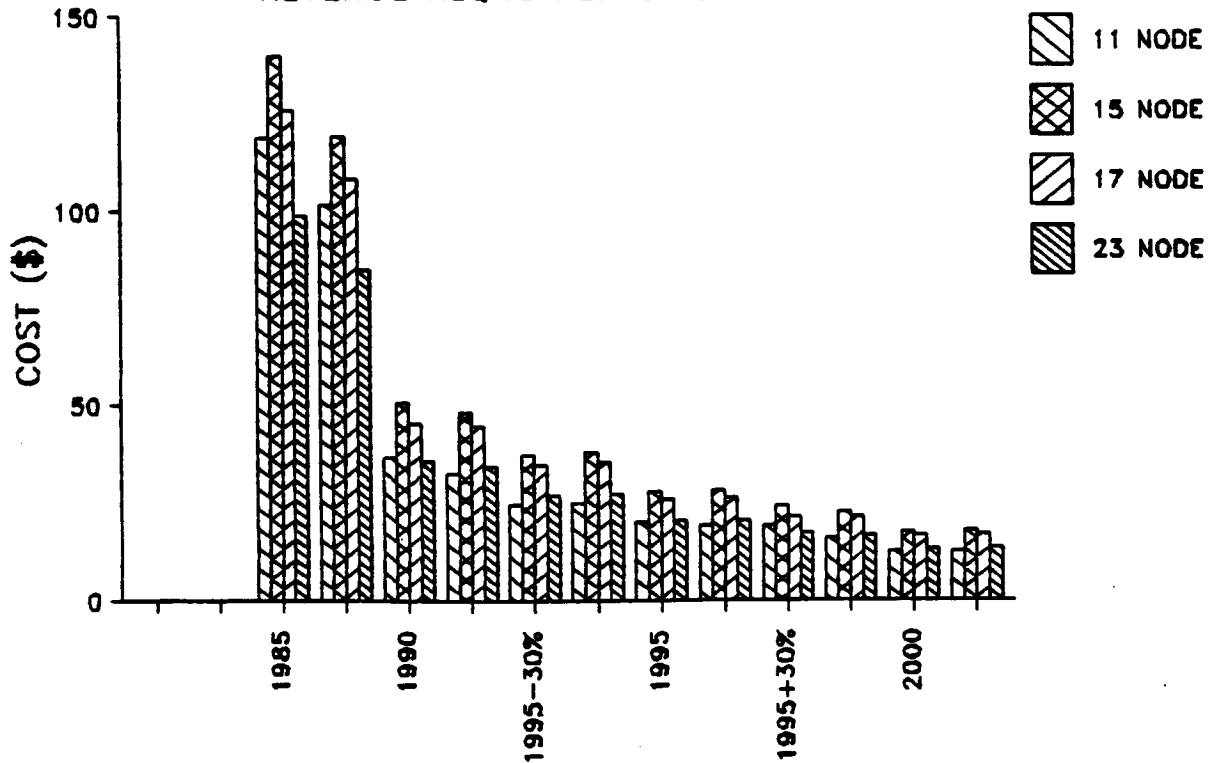
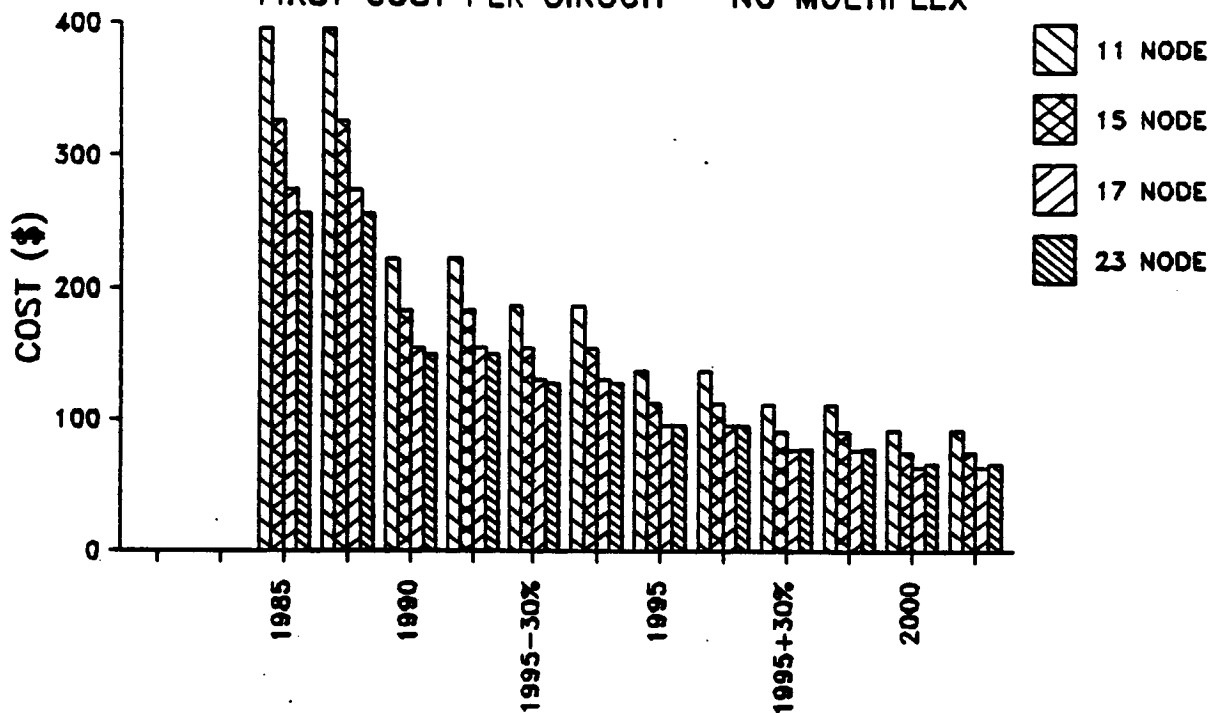


EXHIBIT 6.136B: LATA NETWORKS

FIRST COST PER CIRCUIT - NO MULTIPLEX



24f/96f FO CABLE

REVENUE REQ'TS PER CIRCUIT - NO MUX

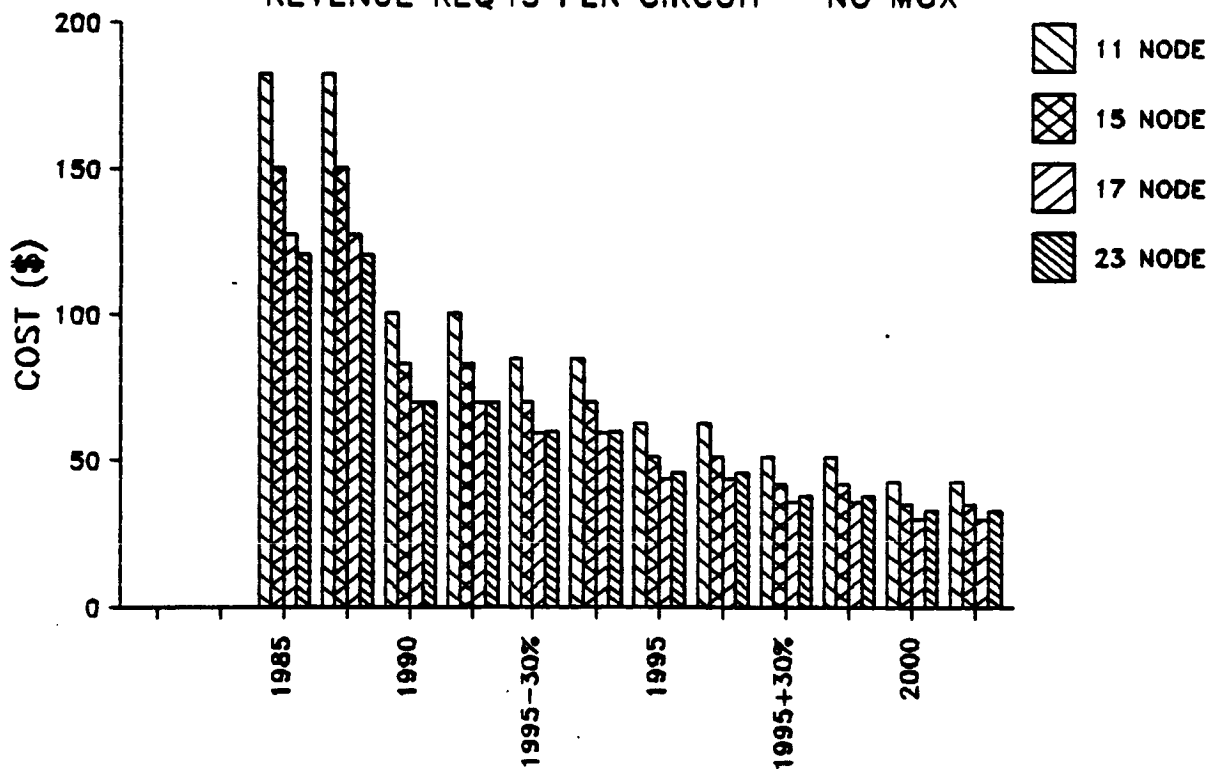
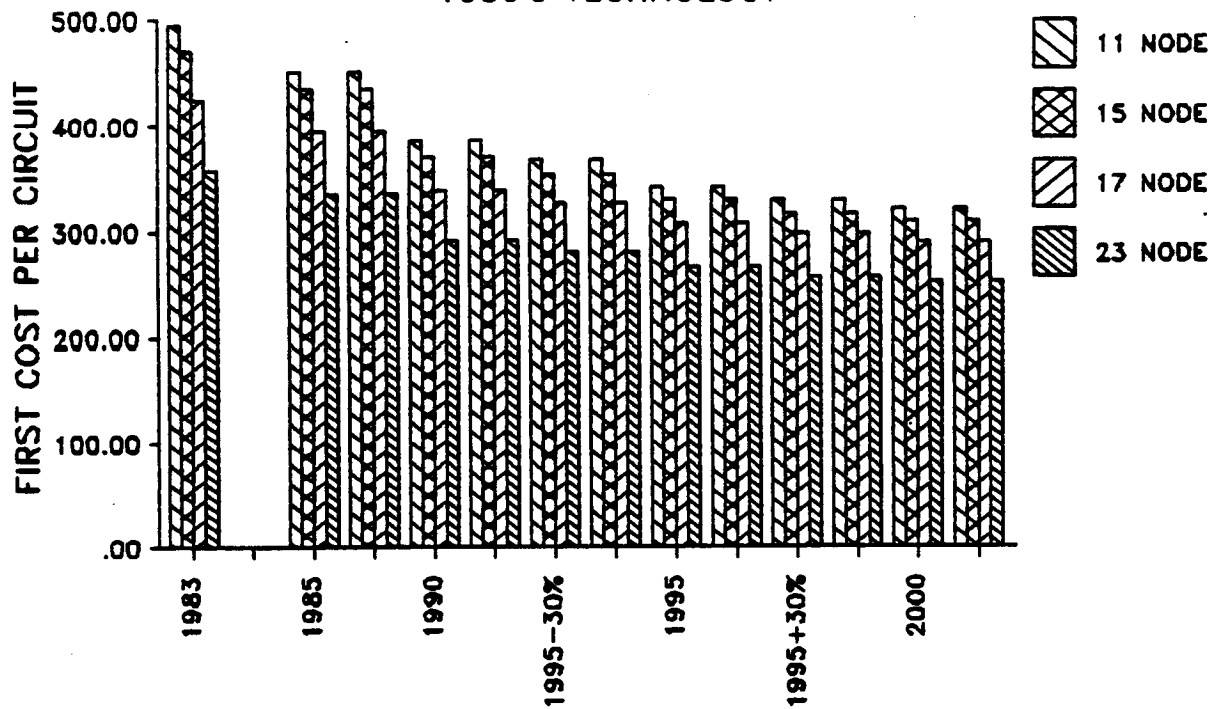


EXHIBIT 6.137: COMBINED NETWORKS 1980's TECHNOLOGY



24f/48f FO CABLE

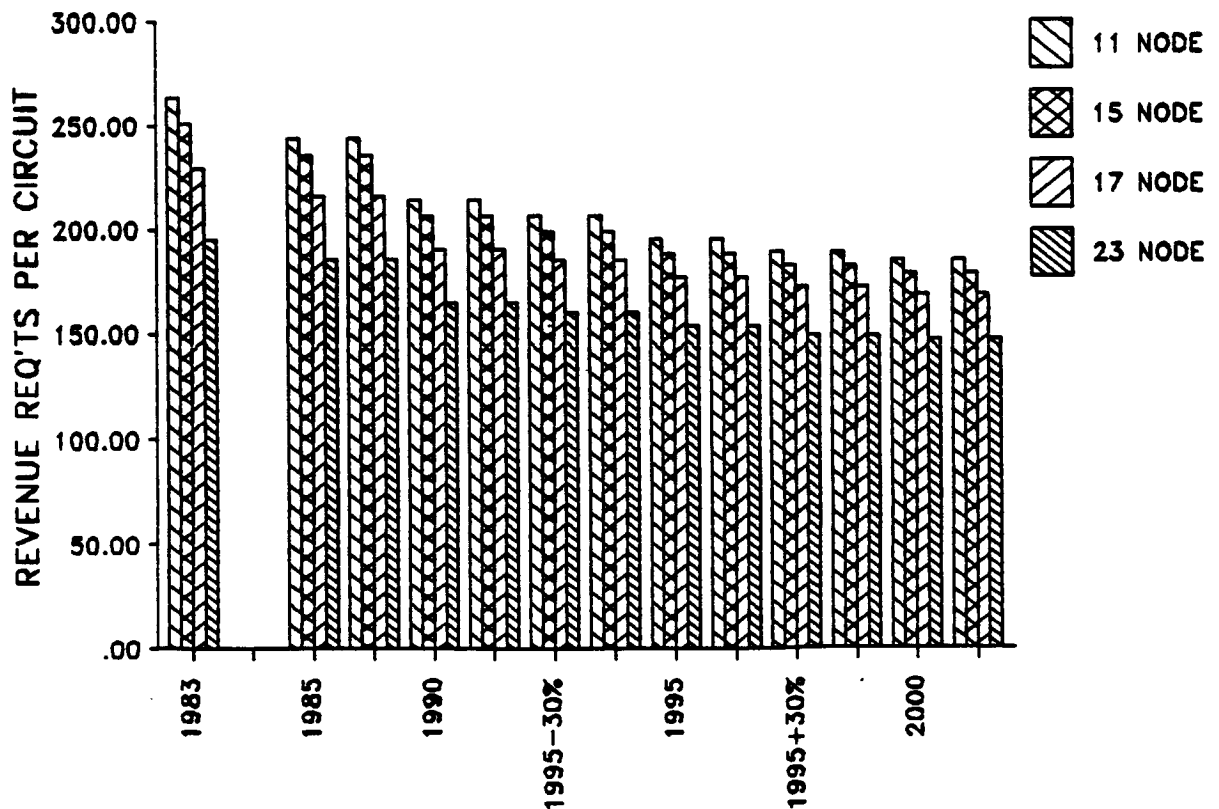
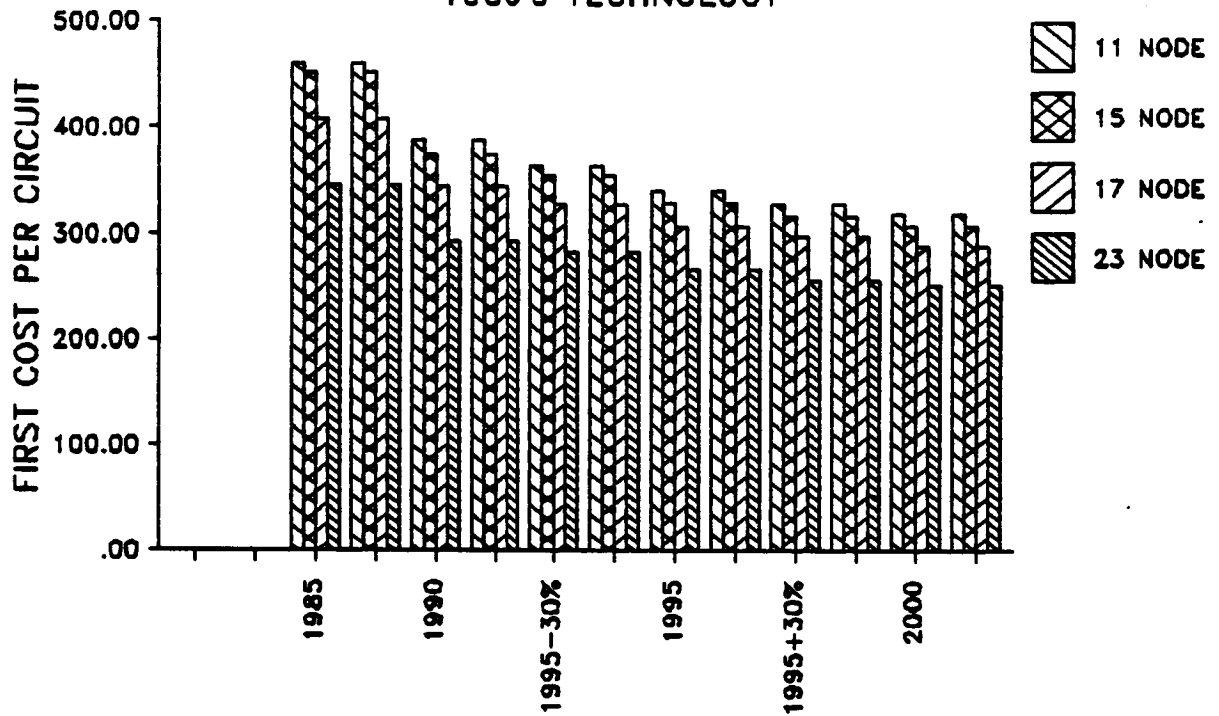


EXHIBIT 6.138: COMBINED NETWORKS

1980's TECHNOLOGY



24f/96f FO CABLE

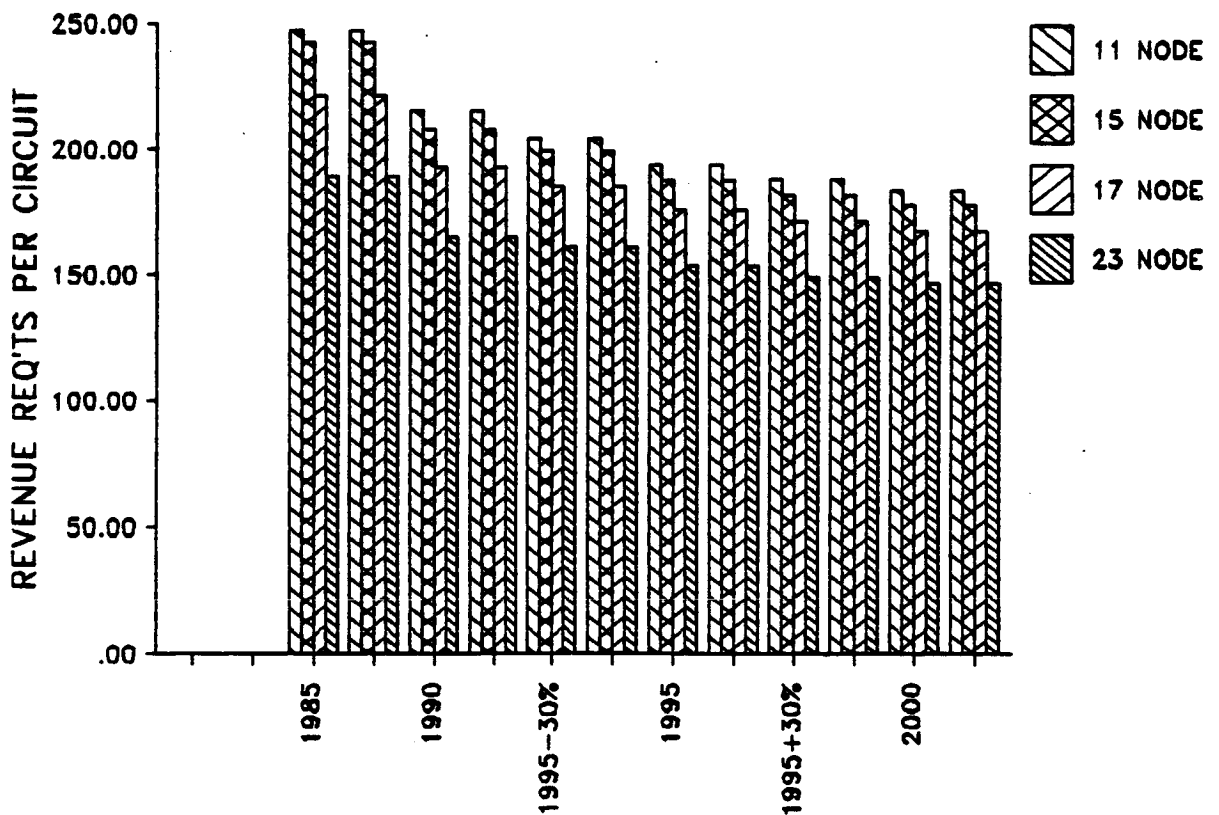
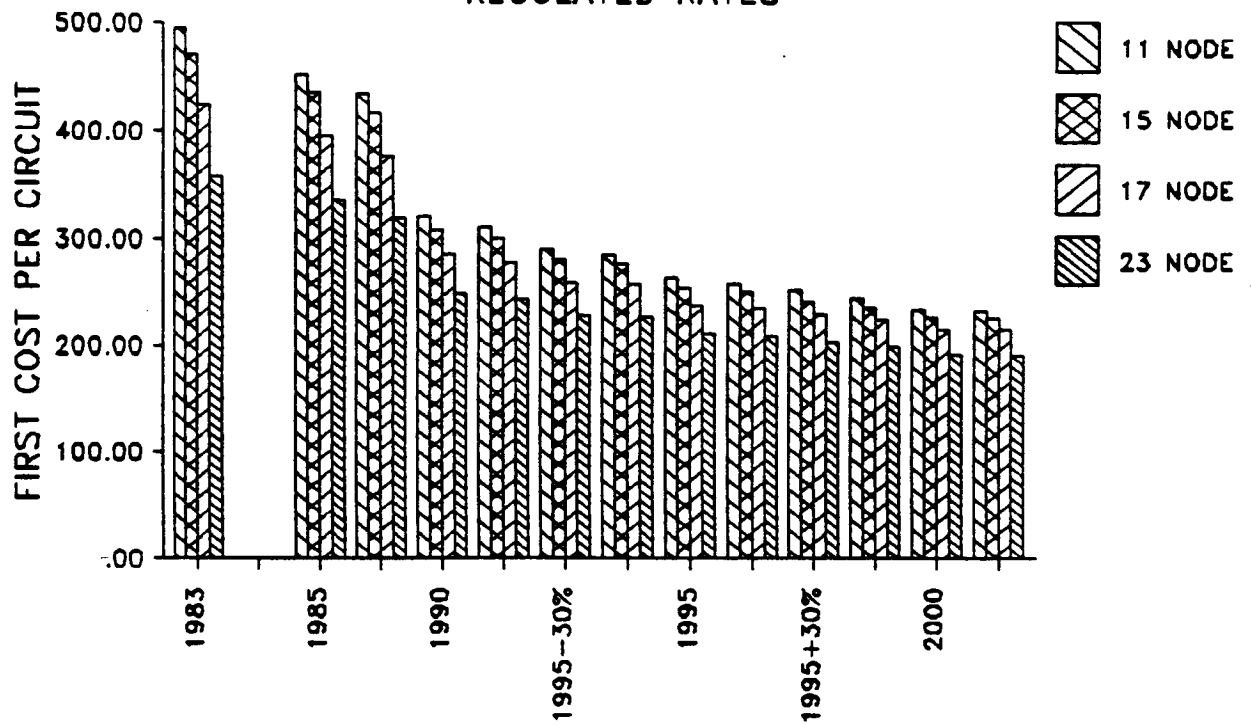


EXHIBIT 6.139: COMBINED NETWORKS REGULATED RATES



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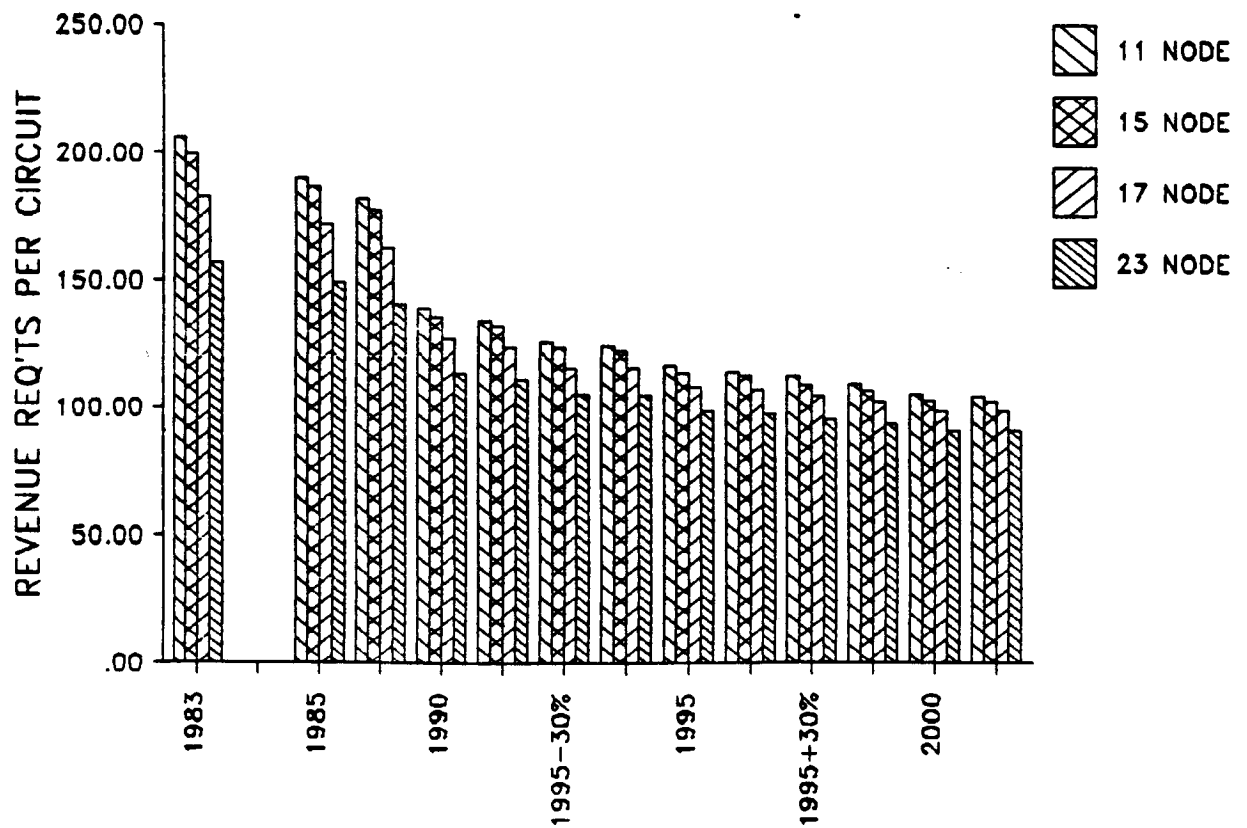
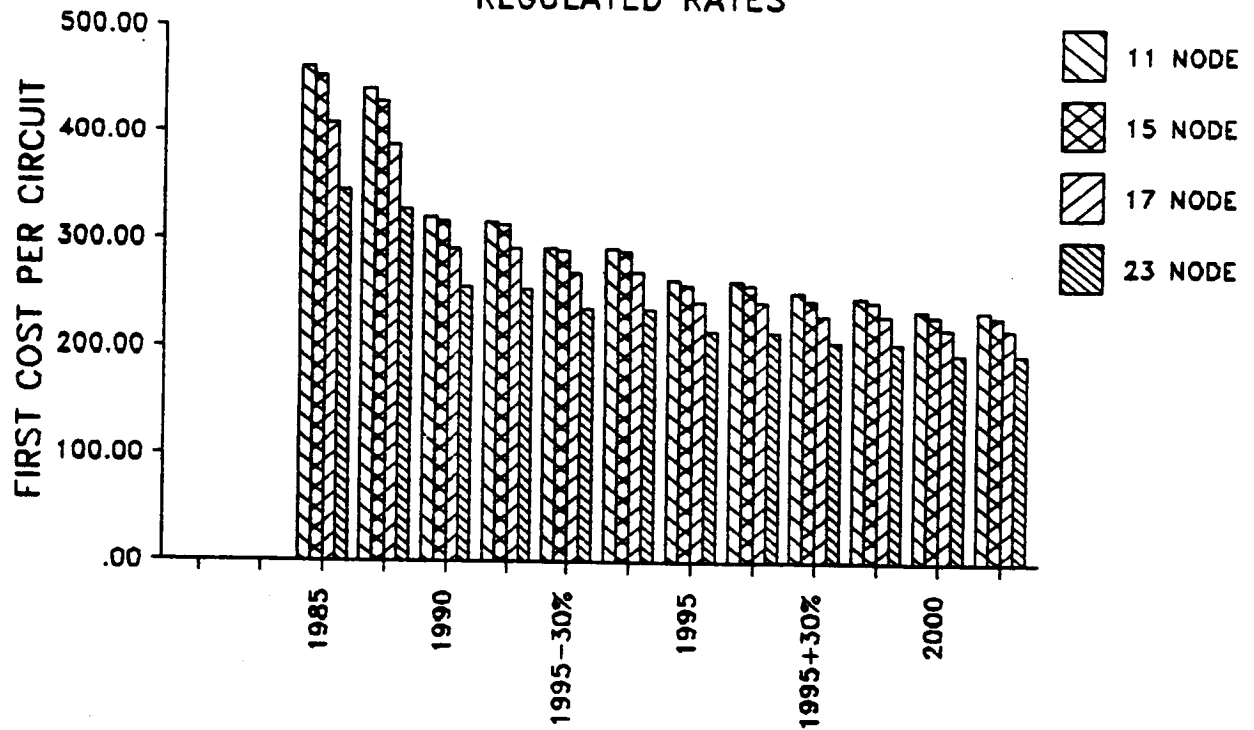
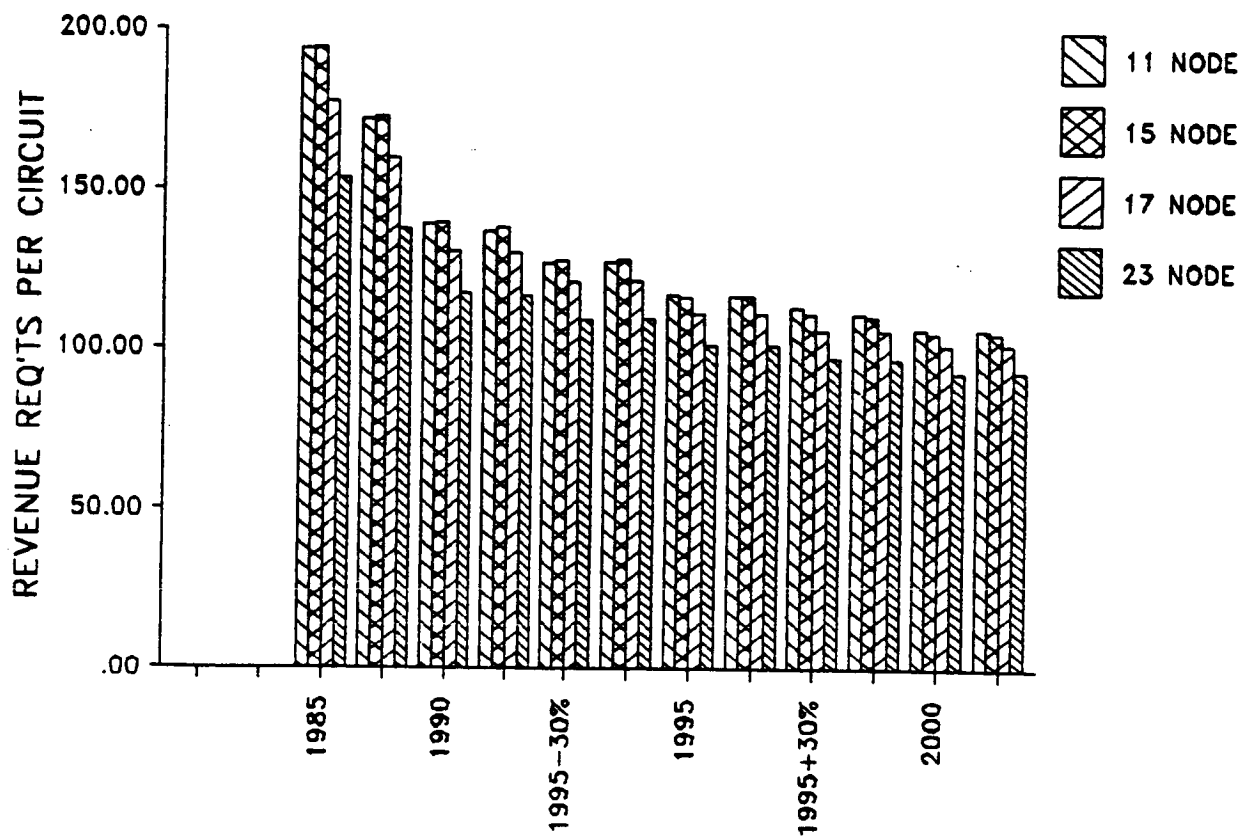


EXHIBIT 6.140: COMBINED NETWORKS REGULATED RATES



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APPENDIX 6.1

CONTINUING COSTS

A 6.1 ANNUAL COSTS

When a telecommunications carrier decides to purchase equipment for its system, it must obtain the money necessary to pay for the material and associated labor. This money is obtained from retained earnings, stockholder investment, and debt financing. These funds are classified as invested capital.

The real cost of an equipment installation is the cost of paying back the money used to finance the work together with the cost of operating the installation.

Cost of ownership thus includes costs associated with the capital required to finance the installation and costs associated with operating the installation. These costs can be annualized and lumped together as the annual cost of an installation, since they are incurred continuously over the life of an installation. .

A 6.2 CAPITAL COSTS

Capital costs fall under three general groupings:

- Return on invested capital
- Recovery of invested capital
- Income tax (on the return on invested capital)

Invested capital consists of Equity (shareholders') and Long-Term Debt (bondholders'). Both groups of investors expect a return for the use of their money in the form of dividends for shareholders and interest payments for bondholders.

A 6.2.1 Return on Invested Capital

The rate of return on invested capital is a composite of bond interest rates and the return on equity capital. The relationship between the overall rate of return and the return on equity is a function of the bond interest rate and the debt ratio of the company, where the debt ratio is the ratio of debt capital to total capital.

For example, if the objective overall rate of return is 15 percent, the bond interest rate is 12 percent, and the debt ratio is 55 percent, the return on equity capital is calculated as follows:

$$\% \text{ ROE} = \frac{\% \text{ ROR} - (\text{Bond Interest Rate})(\text{Debt Ratio})}{(1 - \text{Debt Ratio})}$$

$$\% \text{ ROE} = \frac{15 - (12 \times .55)}{1 - .55} = 18.67\%$$

A 6.2.2 Recovery of Invested Capital

Physical assets lose value as time passes because of wear and tear, unsuitability (style, size, weight, power drain, etc.) to users' requirements, technological advances, or a combination of these factors. For a number of reasons, an asset reaches the end of its useful life and the capital invested in the asset will be dissipated unless some method is provided for its repayment. This repayment of capital is accomplished during the service life of the asset in the form of an allowance for depreciation which is treated as an expense. Depreciation expense is a tax shelter which permits the transfer of capital from old assets to new assets in regular installments as the old assets are used up in service.

Depreciation expense is deducted from current revenues, but the amount deducted is based on the historical cost and not the replacement cost of the asset. This arrangement provides no protection against inflation.

Depreciation accounting is ordinarily used only for physical property with a useful life expectancy exceeding one year. The practice generally followed in the telecommunications industry is to allocate the cost of property to its years of useful life, year-by-year, on an even basis. This is known as straight-line depreciation accounting.

The straight-line depreciation rate is calculated using the formula:

$$\% \text{ Depreciation} = \frac{100\% \text{ First Cost} - \% \text{ Net Salvage}}{\text{Average Life}}$$

where Net Salvage = Gross Salvage - Cost of Removal

This is illustrated in Exhibit A 6.1.

Mortality tables are available and are used by the telecommunications carriers to provide average service lives for various classes of telephone equipment and plant for study purposes. This is illustrated in Exhibit A 6.2. It should be noted that the stated depreciation rate is an average for an entire group of items, even though in practice there may be a wide range of actual service lives for the items in a group.

A 6.2.3 Income Tax

Corporate income taxes are levies on taxable income. If a business is operating at a profit, and thus earning a return on invested capital, the return is subject to income tax and the income tax thus becomes a tax associated with capital.

A calculation of the effect of the income tax on the annual cost associated with an investment involves the corporate debt ratio and the corporate income tax rate. This calculation is illustrated in Exhibit A 6.3.

6.3 OPERATING COSTS

Operating costs fall under three basic classifications:

- Maintenance
- Overhead and Miscellaneous
 - Administrative
 - Marketing
 - Commercial
 - Customer Records and Billing (CRB)
 - Traffic Operating
 - Coin Collecting
- Ad Valorem Taxes

A 6.3.1 Maintenance Expense

Included in the maintenance expense classification are:

- The cost of material and labor associated with the upkeep of equipment and plant. This includes training of maintenance forces and testing of equipment and facilities.
- Rearrangements and changes of plant.
- Miscellaneous expenses such as shop repairs, tool expense, house service, etc.
- Power and floor space.
- General supervision and maintenance engineering.

Although maintenance costs do have some relationship to the quantities and types of equipment in service, the broad averages obtained from relating total maintenance expense to total first cost do not necessarily hold when specific items of plant are considered. One of the design objectives apparent in the modernization of all types of equipment is the attention given to reducing maintenance expense. Often this expense reduction is

brought about through higher first costs for the equipment. Thus, in a specific cost study, the associated maintenance shown as an annual charge is usually independent of the capital commitment. This is illustrated in Exhibit A 6.4 which shows estimated annual costs of maintaining outside plant in a major telephone company. Interestingly, the same telephone company uses averages from relating total maintenance expense to total first cost for nearly all other classes of plant.

Thus, when carrying out a specific cost study, attempts should be made to obtain detailed actual maintenance cost data for specific installations under study.

A 6.3.2 Overhead and Miscellaneous

This grouping includes administrative costs, commercial and marketing costs, and customer records and billing (CRB) costs, all of which are classified as Overhead Costs. Also included are traffic operating costs and coin telephone collection costs which are classified as Miscellaneous Costs.

These expenses are normally allocated as a percentage of the capital investment in the items of plant under study. Exhibit A 6.5 shows the percentages of capital investment used by a major telephone company to account for various overhead and miscellaneous costs. They are usually omitted from study calculations in cases where these expenses do not vary among different plans.

A 6.3.3 Ad Valorem Taxes

Taxes of various kinds are levied on property by a variety of public agencies. Among the most important of these taxes are the "ad valorem" taxes which are levied on the value of the plant, with the plant valuation being determined by assessment. Ad valorem taxes are usually expressed as a percentage of first cost, with the tax factor being an average rate based on studies relating actual past property taxes to the book value of the plant.

A 6.3.4 Total Annual Costs

The various types of "costs" used in engineering cost studies generally fall into two classes, those associated with the investment of capital and those associated with physical plant. Some costs occur only once and others continue at regular intervals throughout the service life of the plant. Operating expenses are paid out of current operating revenues. Capital expenditures are paid with investor funds, both debt and equity. Capital expenditures carry the burden of return, repayment, and income taxes.

It can be seen that the burden of an operating cost is less than the burden of a capital cost, because of the additional burdens of return, repayment, and income taxes, most of which continue even if the equipment installation is not in use. Referring to Exhibit A 6.6, the commitment in terms of operating costs, ad valorem taxes, and depreciation can amount to approximately 14% of the installed first cost of microwave radio equipment and 8.5% of the installed first cost of fiber optic cable. Within seven years, the cumulative annual cost commitment, meaning the revenue requirement, will be nearly equal to the installed first cost for microwave and more than half the first cost for fiber optic cable. This does not include the related commitment for capital costs, which vary with the company's financial structure.

A 6.4 TIME VALUE OF MONEY

Money has potential earning power and thus the cost of using money must be measured in terms of this earning power. The earning power of money is continuous over time so the cost of using it continues to accumulate as the period of time increases.

In other words, a dollar spent (received) today is worth more than a dollar spent (received) next year, if for no other reason than the investment potential of a dollar, which could possibly generate a return of, for example, 10 percent during that year. Thus, the future worth of an invested dollar one year later is greater than its present worth by the amount of the investment return, as follows:

$$\begin{aligned}\text{Future Worth (1 year)} &= \text{Present Worth} \times (1.0 + \text{Return}) \\ &= \text{Present Worth} \times 1.10\end{aligned}$$

If this dollar investment were maintained for a second year, the future worth would compound, since the second year would start with 1.10 times the original investment. For the second year:

$$\begin{aligned}\text{Future Worth (2 years)} &= \text{Present Worth} \times (1.10) \times (1.10) \\ &= \text{Present Worth} \times (1.21)\end{aligned}$$

This process is illustrated in Exhibit A 6.7 which shows the increase in the value of an investment at various interest rates over a 10-year period. In general, an investment made at an interest rate of i per period and left for n periods has:

$$\text{Future Worth (n years)} = \text{Present Worth} \times (1 + i)^n$$

For example, \$1.00 invested at a rate of 10 percent per year for three years would grow to:

$$\text{Future Worth (3 years)} = \$1.00 \times (1.10)^3 = \$1.331$$

This relationship states that, due to an investment opportunity rate of 10 percent per year, \$1.00 at the present time is equivalent to \$1.331 three years hence.

The increase in value of an investment over a 10-year period, calculated using the general formula, is shown in Exhibit A 6.8. Curves showing the future worth of an investment plotted against time for several interest rates are shown in Exhibit A 6.9.

Considering the previous example once again, but stating it in different terms, \$.751 could be invested at the rate of 10 percent for 3 years and would appreciate to exactly \$1.00. In this instance, the interest rate is referred to as the discount rate. Using the concepts of the time value of money, it is possible to make dollar amounts involved at the present time to be equivalent to amounts in the future or in the past. In general, the following applies:

$$\text{Present Worth} = \text{Future Worth (in } n \text{ periods)} \times (1 + i)^{-n}$$

Exhibit A 6.10 shows the discount in an investment over a 10 year period and Exhibit A 6.11 illustrates the effect of compounding at different interest rates on the present worth of a future investment.

Many investments involve a net cash outflow (inflow) which continues for a number of years. The total present worth of the stream of expenses (income) can be calculated by first computing the present worth of each year's expense (income), using the method illustrated in Exhibit A 6.12 and adding the results for the total number of years involved. As shown in Exhibit A 6.12, this calculation can also be done using the Annuity Formula, which will give the total present worth of a stream of uniform expenses (income) at a specified interest rate over a given period of time.

As shown in Exhibit A 6.13, it is possible to calculate the following annuity relationships:

- Present Worth of an Annuity
- Future Worth of an Annuity
- Annuity from a Present Amount
- Annuity for a Future Amount

A 6.5 COMPARATIVE COST STUDIES

Comparative cost studies provide a means of determining the most economical course of action in providing new equipment, facilities, or services. Properly conducted comparative cost studies follow a logical sequence of steps. First, they assure that a problem exists; second, they assure that all reasonable plans are considered in the evaluation; and third, they assure that the competing plans can be expressed in monetary terms.

Comparative cost studies are made for one or more of the following reasons:

- To arrive at good decisions when choosing from among two or more plans or methods, and to determine which is the most economical in the long run.
- To estimate the revenue requirements of new service or product offerings.
- To estimate the relative profitability of existing or proposed service or product offerings.
- To estimate revenue and capital requirements over long periods of time when programming major projects.

Any economy study should be analyzed thoroughly enough to insure that a problem exists and that it can be modelled on a cost basis.

A 6.5.1 Economic Selection Studies

The cost-comparison or economic selection study is most commonly used when there is a need to know the difference in cost between two or more competing plans. This type of study is not generally suitable for predicting overall profitability or rate of return that can be attributed to each of the various plans under study.

Once the problem is stated and potential solutions are identified, cost and timing data is assembled for each plan and time-value conversions are made to express all plans on an equivalent basis. In this way, the plans can be compared with one another to determine which appears to be the most economical for the long term.

Among the various ways of expressing the monetary amounts associated with the financial model for each plan so that they are equivalent to one another for comparison purposes are present worth of first cost, present worth of expenditures, present worth of annual charges, or equivalent annual charges.

When the costs and their timing have been determined, the study is made independently of the physical items which generate the costs. The study is concerned only with money.

Costs common to all plans are usually eliminated in economic selection studies since only the most economic plan is to be identified. When revenue requirements, profitability estimates, or long-term capital commitments are under study, all estimated expenditures including overheads must be included, and special consideration may be given to certain items of equipment or plant (e.g. expected service life, reusable material, salvage, etc.) in an effort to insure greater accuracy.

A 6.5.2 Revenue Requirements Method

In a telephone company study situation, it is usually assumed that sufficient revenue to pay capital and operating costs will be generated, regardless of which of several competing plans is selected. The underlying assumption in a regulated environment has been that the rate of return for the company as a whole will be close to a given objective level. In other words, revenues are assumed to move in line with costs over the long run, and rates are set so that they will cover expenses and support a specified return on the embedded investment or "rate base".

Whether or not a telephone company's rates are regulated, however, the fact remains that it is usually difficult if not impossible to determine the revenue that will be generated by a particular project which constitutes only a component of a complex network system. Thus, the approach used is to make economic selections based on the plan which minimizes revenue requirements for the company. Since the present worth of revenue requirements is equal to the present worth of expenditures at an interest rate which is equivalent to the objective rate of return, the economic selection usually involves determining which of several competitive and comparable plans will result in the lowest cost, and hence the lowest revenue requirements, over the long run.

A 6.5.3 Discounted Cash Flow Method

The discounted cash flow (DCF) method of computing return on investment uses future cash flow resulting from the investment plan, using the rate of return as the interest rate to equate future cash flows to a present value for comparison purposes.

For a large telecommunications operation, the DCF method does not always give a complete and accurate picture of the effects of a particular investment on a company's operations. This is because the DCF method will give a true rate of return on a single project, while it is difficult to isolate a single

project within a large telecommunications operation from all the other investments and operations of the company. Thus, it is virtually impossible to determine the income generated as the result of a particular project. Consequently, the costs associated with a project, both the first costs and the recurring annual costs, are of more interest than the profitability of a single project, such as might be the case in a manufacturing company. The objective usually used in the telecommunications operating companies is to make selections which result in the lowest long-run costs.

A 6.5.4 Coterminated or Repeated Plant Assumptions

To be comparable, competing plans should be different methods to accomplish the same end. Competing plans should provide the same quantity and quality of service and provide service over the same period of time.

Assuring the same quantity and quality of service is a matter of engineering design. The requirement that each plan provides service over the same period of time is usually met by assuming that the final installation in all plans will be retired on a common date in the future.

Sometimes an equivalence in time among different plans is reached by assuming that some or all of the plant will be repeated at the same costs until a common retirement date is realized. In other cases, repetition is assumed to be perpetual.

A 6.5.5 Present Worth Comparisons

Problems which lend themselves to present worth analysis are usually characterized by:

- The assumption of coterminated plant
- Deferred investments over the study period

A 6.5.6 Annual Charge Comparisons

Annual charge study techniques are applied most effectively to the following types of plans:

- Comparison of plans involving new plant placed now
- Comparison of a higher-priced longer-life item with a lower-priced shorter-life item.
- Determination of how much can be spent now on interim measures to defer an investment.

A 6.5.7 Present Worth of Annual Charge (PWAC) Comparisons

Some studies of competing plans are not solved readily using either the present-worth or the annual-charge approach. These studies are usually characterized by non-coincident retirements and are best analyzed using the present worth of annual charges approach which combines the present-worth and the annual-charge approach.

EXHIBIT A 6.1

DEPRECIATION RATE

STRAIGHT-LINE DEPRECIATION RATE

$$\% \text{ DEPRECIATION} = \frac{100 \% - \text{NET SALVAGE} (\%)}{\text{AVERAGE LIFE}}$$

$$\text{NET SALVAGE} = \text{GROSS SALVAGE} - \text{COST OF REMOVAL}$$

DEPRECIATED VALUE (%)

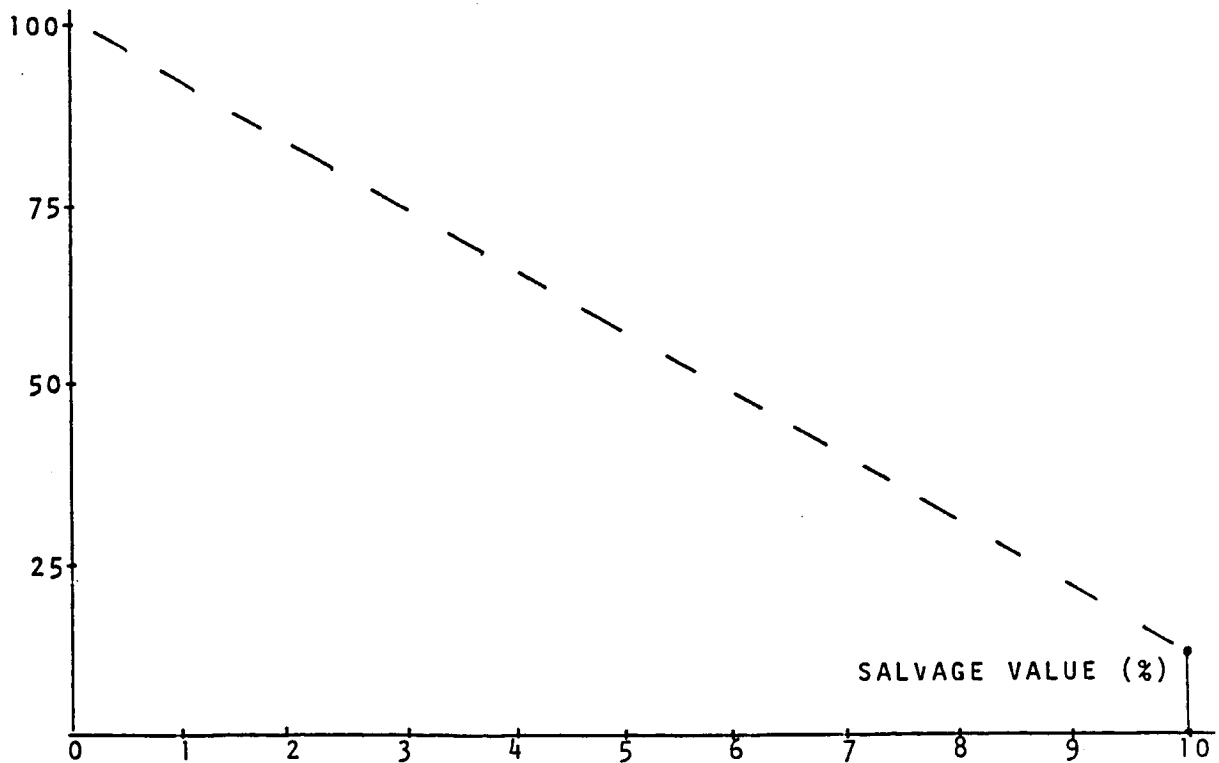


EXHIBIT A 6.2

AVERAGE LIVES, NET SALVAGE VALUES FOR TELEPHONE PLANT

(MAJOR NORTH AMERICAN TELEPHONE COMPANY)

<u>FACILITY</u>	<u>LIFE (YRS)</u>	<u>NET SALVAGE (%FC)</u>
Land	99	100.0
Buildings	40	5.0
Radio Towers	35	-50.0
Radio (Terrestrial)	15	-10.0
Power	15	-10.0
Test Equipment	10	0.0
Radio (Earth Station)	Not Listed	Not Listed
Satellite (Space Segment)	Not Listed	Not Listed
Fiber Optic Cable (In Conduit)	45	-10.0
Circuit Equipment	15	- 5.0

NOTE: Net salvage is salvage value less cost of removal.

EXHIBIT A 6.3

INCOME TAX

$$\text{TOTAL RETURN} = \text{EQUITY RETURN} + \text{BOND INTEREST}$$

$$\text{AND THUS EQUITY RETURN} = \text{TOTAL RETURN} - \text{BOND INTEREST}$$

$$\text{DEBT RATIO} = \frac{\text{DEBT CAPITAL}}{\text{TOTAL CAPITAL}}$$

$$\text{EQUITY RETURN} = \text{TAXABLE INCOME} - \text{INCOME TAX}$$

$$\text{AND THUS TAXABLE INCOME} = \text{EQUITY RETURN} + \text{INCOME TAX}$$

$$\text{INCOME TAX} = T \times \text{TAXABLE INCOME} \quad (T = \text{EFFECTIVE TAX RATE})$$

$$\text{INCOME TAX} = T \times (\text{EQUITY RETURN} + \text{INCOME TAX})$$

$$\text{AND INCOME TAX} (1-T) = T (\text{EQUITY RETURN})$$

$$\text{AND THUS INCOME TAX} = \frac{T}{1-T} (\text{EQUITY RETURN})$$

$$\text{EQUITY RETURN} = \text{TOTAL RETURN} - \text{BOND INTEREST}$$

$$\text{AND INCOME TAX} = \frac{T}{1-T} (\text{TOTAL RETURN} - \text{BOND INTEREST})$$

EXHIBIT A 6.4

MAINTENANCE AND PROPERTY TAX COST FACTORS
(MAJOR NORTH AMERICAN TELEPHONE COMPANY)

CLASS OF PLANT	UNIT OF PLANT	PROPERTY TAX (% of 1st Cost)	MAINTENANCE (\$/Unit or % of 1st Cost)
Land	1st Cost	Varies	-----
Buildings	1st Cost	2.4%	2.1%
MW Towers	1st Cost	1.0%	.4%
Radio (Terrestrial)	1st Cost	2.8%	3.9%
Power	1st Cost	1.1%	3.8%
Test Equipment	1st Cost	Not Listed	Not Listed
Radio (Earth Station)	1st Cost	Not Listed	Not Listed
Satellite (Space Segment)	1st Cost	Not Listed	Not Listed
Cable (In Conduit)	1000 Sh. Ft.	1.0%	\$94.0
Circuit Equipment	1st Cost	2.8%	4.2%

EXHIBIT A 6.5

<u>OVERHEAD & MISCELLANEOUS COSTS</u>	<u>% OF FIRST COST</u>
Administrative (All)	2.24
Marketing (\$74/YR/Business Acct.)	.40
Commercial (\$30/YR/Customer Acct.)	1.00
Customer Record Billing (\$9/YR/Customer Acct.)	.30
Traffic Operating (\$23/Productive Operator Hr.)	--
Coin Telephone Collection (\$52/YR/Coin Tel.)	--

(COSTS NORMALLY EXCLUDED FROM ECONOMIC SELECTION STUDY)

EXHIBIT A 6.6

ANNUAL COST DATA

SEVERAL NORTH AMERICAN TELEPHONE COMPANIES

SERVICE LIFE (YRS)	COMPANY				STUDY VALUE
	A	B	C	D	
Land	-	Infinite	-	99	99
Buildings	-	43	-	40	41.5
Towers	-	-	-	35	35
Radio (Terrestrial)	-	12.8	13.5	15	13.9
Power	-	-	-	15	15
Test Equipment	-	-	-	10	10
Radio (Earth Stat.)	-	-	-	-	10 (Est.)
Satellite (Space Seg.)	-	-	-	-	10 (Est.)
F.O. Cable (In Conduit)	-	43	-	45	44.5
Circuit Equipment	-	28	-	15	21.5
<u>NET SALVAGE (% FC)</u>					
Land	-	100	-	100	100
Buildings	-	0	-	5	5
Towers	-	-	-	-50	-50
Radio (Terrestrial)	-	5	8	-10	-10
Power	-	-	-	-10	-10
Test Equipment	-	-	-	0	0
Radio (Earth Stat.)	-	-	-	-	-10 (Est.)
Satellite (Space Seg.)	-	-	-	-	0 (Est.)
F.O. Cable (In Conduit)	-	13	-	-10	-10
Circuit Equipment	-	3	12	-5	-5

EXHIBIT A 6.6(Continued)ANNUAL COST DATASEVERAL NORTH AMERICAN TELEPHONE COMPANIES

OPERATION/MAINTENANCE (% FC)	A	COMPANY B	C	D	STUDY VALUE
Land	-	6.5	-	-	6.5
Buildings	2.0	3.9	-	2.1	2.95
Towers	-	-	-	.6	.4
Radio (Terrestrial)	7.4	7.2	6.0	3.9	5.65
Power	-	-	-	4.6	4.0
Test Equipment	-	-	-	-	3.5 (Est.)
Radio (Earth Station)	-	-	-	-	11.3 (Est.)
Satellite (Space Seg.)	-	-	-	-	3.5 (Est.)
F.O. Cable (In Conduit)	3.4	1.6	2.0	*	2.5
Circuit Equipment	6.8	3.2	6.0	4.2	5.0

* \$94 PER 1000 SHEATH FEET

AD VALOREM TAX (% FC)

Land	1.8	2.2	-	-	2.0
Buildings	1.8	2.2	-	2.4	2.1
Tower	1.8	2.2	-	2.4	2.1
Radio (Terrestrial)	1.8	2.2	-	2.8	2.3
Power	1.8	2.2	-	1.1	1.65
Test Equipment	1.8	2.2	-	-	2.0
Radio (Earth Station)	-	-	-	-	2.3 (Est.)
Satellite (Space Seg.)	-	-	-	-	0
F.O. Cable (In Conduit)	1.8	2.2	-	2.7	2.25
Circuit Equipment	1.8	2.2	-	2.8	2.3

EXHIBIT A 6.7

COMPOUND INTEREST TIME DIAGRAM

	0	1	2	3	4	5	6	7	8	9	10
<u>INITIAL INVESTMENT = \$100</u>											
<u>i = 5%</u>											
INT.		5	5.25	5.51	5.79	6.08	6.38	6.70	7.04	7.39	7.76
BAL.	105	110.25	115.76	121.55	127.63	134.01	140.71	147.75	155.14	162.90	
<u>i = 10%</u>											
INT.		10	11.00	12.10	13.31	14.64	16.11	17.72	19.49	21.44	23.58
BAL.	110	121.00	133.10	146.41	161.05	177.16	194.88	214.37	235.81	259.39	
<u>i = 15%</u>											
INT.		15	17.25	19.84	22.81	26.24	30.17	34.70	39.90	45.89	52.77
BAL.	115	132.25	152.09	174.90	201.14	231.31	266.01	305.91	351.80	404.57	
<u>i = 20%</u>											
INT.		20	24.00	28.80	34.56	41.47	49.77	59.72	71.66	86.00	103.20
BAL.	120	144.00	172.80	207.36	248.83	298.60	358.32	429.98	515.98	619.18	

EXHIBIT A 6.8

$$FW = PW (1 + i)^n$$

$$i = 15\%, \quad PW = \$100$$

<u>n</u>	<u>$(1 + i)^n$</u>	<u>$FW = PW (1 + i)^n$</u>
0	1	100
1	1.15	115
2	1.3225	132.25
3	1.520875	152.09
4	1.74900625	174.90
5	2.011357188	201.14
6	2.313060766	231.31
7	2.66001988	266.00
8	3.059022863	305.90
9	3.517876292	351.79
10	4.045557736	404.56

EXHIBIT A 6.9

FUTURE WORTH OF AN INVESTMENT

$$FW = PW \times (1 + \text{INTEREST RATE})^N$$

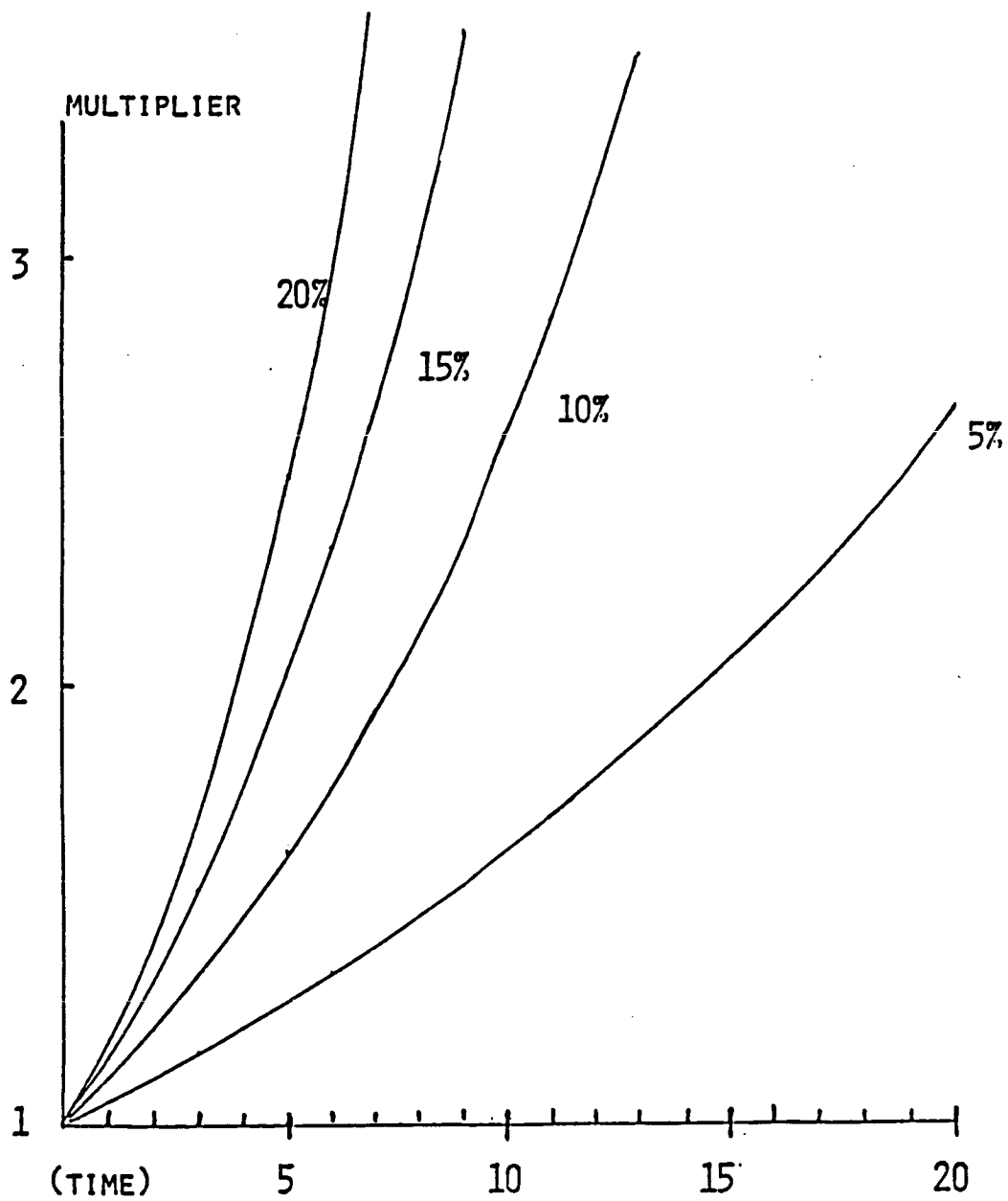


EXHIBIT A 6.10

$$PW = \frac{FW}{(1 - i)^n}$$

$i = 15\%, \quad FW = \$100$

n	$\frac{1}{(1 - i)^n}$	$PW = \frac{FW}{(1 - i)^n}$
0	1	100
1	.8695652174	86.96
2	.7561436673	75.61
3	.6575162324	65.75
4	.5717532456	57.18
5	.4971767353	49.72
6	.4323275959	43.23
7	.3759370399	37.59
8	.3269017738	32.69
9	.2842624120	28.43
10	.2471847061	24.72

EXHIBIT A 6.11

PRESENT WORTH OF A FUTURE INVESTMENT

$$PW = \frac{FW}{(1 + \text{INTEREST RATE})^N} = FW \times (1 + \text{INTEREST RATE})^{-N}$$

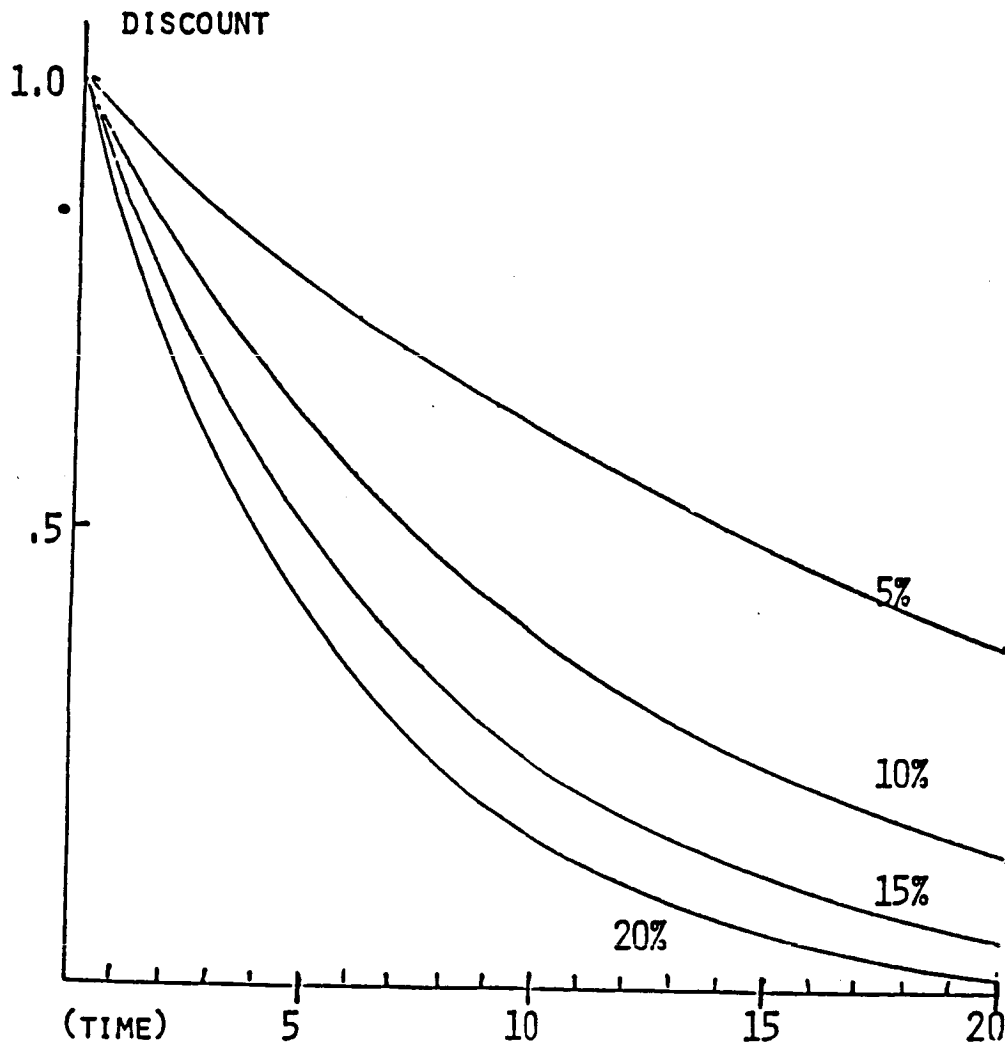


EXHIBIT A 6.12

ANNUITY CALCULATIONS

YEAR	FUTURE WORTH	PRESENT WORTH= $(1 + i)^{-n}$
1	\$1.00	\$.909
2	1.00	.826
3	1.00	<u>.751</u>
		\$ 2.486

The \$2.486 is the present worth of a periodic cash flow of \$1.00 per year, discounted at 10 percent per year. Since Investment A involves a cash flow of \$3.00 per year,

$$\text{Present Worth} = \$3 \times 2.486 = \$7.458$$

This annuity present worth factor can be computed from an equation derived from the sum of the periodic present worths:

Annuity Present Worth

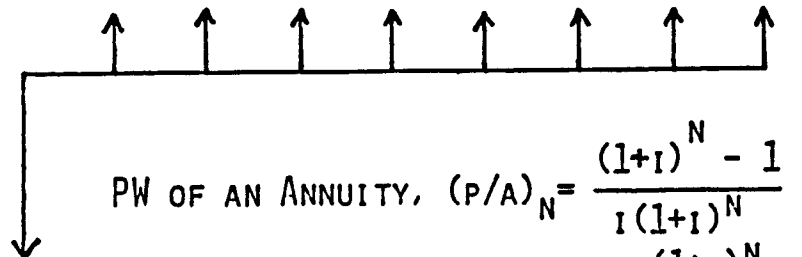
of \$1.00 per year for n years = $(1 + i)^{-1} \times (1 + i)^{-2} \dots$

$$\dots (1 + i)^{-n}$$

$$= \frac{1 - (1 + i)^{-n}}{i}$$

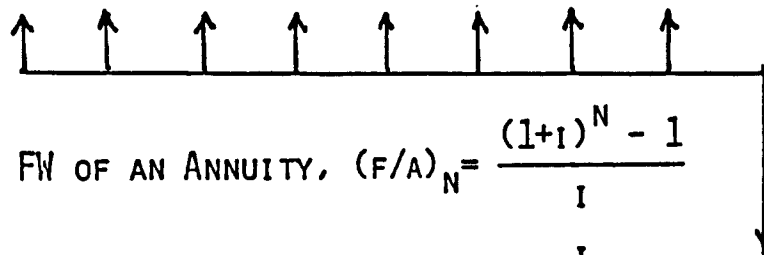
EXHIBIT A 6.13

ANNUITY FORMULAS



A horizontal timeline with eight upward-pointing arrows representing cash flows. A downward-pointing arrow at the start of the timeline indicates a present value (P).

$$\text{PW OF AN ANNUITY, } (P/A)_N = \frac{(1+i)^N - 1}{i(1+i)^N}$$
$$\text{ANNUITY FROM A PW, } (A/P)_N = \frac{i(1+i)^N}{(1+i)^N - 1}$$



A horizontal timeline with eight upward-pointing arrows representing cash flows. A downward-pointing arrow at the end of the timeline indicates a future value (F).

$$\text{FW OF AN ANNUITY, } (F/A)_N = \frac{(1+i)^N - 1}{i}$$
$$\text{ANNUITY FOR A FW, } (A/F)_N = \frac{i}{(1+i)^N - 1}$$

SECTION 7.0
IMPACT OF FIBER OPTIC SYSTEMS

7.1 COMPARISON OF FIBER OPTICS AND OTHER TRANSMISSION MEDIA

Fiber optics, of course, is not the only transmission technology for long-distance communications. The other widely used media are microwave and satellites, each of which offers distinct advantages and disadvantages.

7.1.1 Microwave

Microwave (as well as satellite) systems deploy radio waves which are open to interference, susceptible to interception by unauthorized persons, and subject to propagation fluctuations due to tropospheric variations. In addition, microwave is subject to the limited availability of the frequency spectrum. Microwave systems are already critically crowded, especially within metropolitan areas.

These disadvantages notwithstanding, microwave is a very economical solution for transmission distances between 50 and 1500 miles and route cross sections of up to 1300 voice circuits or aggregate data rates of about 90 Mbps. For higher cross sections, the cost advantage extends to over 3000 miles.

Since microwave technology is already mature, it is not expected that its relative standing with the other two media will improve in the future; if anything, it will probably lose some ground. There are limited possibilities for new applications of very light-weight, small capacity, short-distance, point-to-point links in the local distribution area.

7.1.2 Satellite

As an open-air medium, satellite communication is subject to many of the same problems as microwave: interference, interception, and propagation fluctuations. For geostationary satellites, the limited availability of frequency spectrum is characterized by a shortage of orbital slots above the continental United States, although the reduction of orbital slot assignments to 2 degrees should bring some alleviation.

Satellite communications are also subject to a round-trip propagation delay of about .25 seconds, not including any additional delay contributed by the equipment itself. This delay has no detrimental impact on TV and bulk data transmission, but it becomes highly objectionable in interactive communications such as data processing and telephony.

Although satellites are economically attractive for transmission over 1000 miles, the disadvantages imposed especially by propagation delay make it a poor choice for telephone common carriers. It is likely that satellites will find their niche in the transmission of TV signals for broadcasting stations or cable systems, and in the transmission of bulk data not requiring interactive responses.

7.1.3 Fiber Optics

The advantages of fiber optics have been discussed in Section 1.2. These advantages include:

- Potentially unlimited bandwidth;
- Low attenuation;
- Small size and weight;
- Immunity from interference;
- Security;
- Compatibility with digital technology;
- High reliability;
- Modular design; and
- Ease of installation.

The major advantages of fiber relative to microwave and satellite are that transmission over optical fibers is free from spectrum congestion and outside interference of any kind. Its potentially unlimited bandwidth and long repeaterless distances also make it the ideal medium for long haul transmission.

Like all terrestrial media, optical cables have the disadvantage of being locked into point-to-point connections of fixed routes with no mobility. Although this limits fiber's versatility somewhat, it still works admirably well for heavy backbone traffic in large long-distance networks.

Optical systems are economical against microwave systems for short distances, including the local telephone distribution plant. At the other end of the market, they are economical against satellite, particularly for route cross sections of 8000 voice circuits and over. Since fiber optic transmission systems have not yet reached their potential, we believe that further developments in optical technology will tilt the scales in favor of fiber optic at both ends of the market. By the criteria of quality of transmission, lack of interference, lack of delay, and

low cost, fiber presents itself as a superior alternative to other media.

7.2 CONCLUSIONS

Fiber optics from its early beginnings has held the promise of being an exceptionally high quality medium. Because of steady improvements in the performance and cost-effectiveness of the technology, fiber optics is on its way to becoming a universal transmission medium. Developments over the past two decades have been phenomenal, and they show every sign of continuing (albeit it at a somewhat slower pace) for the indefinite future.

The recent rush to install fiber networks is one indication that fiber optics is the medium of choice for all of the domestic long distance communications carriers. While satellite and microwave will continue to occupy niches, these other transmission media are being replaced by fiber whenever and wherever economically feasible.

Revenue requirements per circuit for LATA-to-LATA links for each of the four model networks are less than one cent per call-minute (\$.004 to \$.008). This is much less than the end-user to end-user cost, which also includes charges for local distribution.

The relative ratios of the cost distribution for an average end-user to end-user connection are:

Backbone Inter-Nodal Network	1.0
Lata Access Network	2.1 to 4.0
Local Distribution Network	80.0 to 120.0

The long distance (inter-nodal) portion of the connection therefore represents a very small proportion of the total cost.

The average cost per circuit in the LATA-to-LATA network (inter-nodal plus LATA access networks) is relatively insensitive to technology changes. Restricting the network design to 1980s' technology throughout the study period (i.e. up to 2000) increases the revenue requirements per circuit by less than 10 percent. Even if the traffic and cost estimates prove to be greatly in error, doubling or tripling the revenue requirements per circuit still results in a relatively small cost per minute.

As the fiber optic utilization factor increases, multiplex equipment (both voice (T-1) and M13) is the largest contributor to circuit costs. Since multiplex equipment of this type is likely to be required in any competing system, it is interesting to note that the average revenue requirements per circuit without multiplex are less than one-half cent per minute (\$.001 to \$.005).

Fiber optic cable potential capacity is very large, and the capacity limit has not yet been defined, much less realized. It is possible that, because of the advances being made in higher line rate transmission systems, the larger cables may not be used to their maximum capacity during their installation lifetime (20 years).

Because fiber optic transmission systems are so cost-effective, they can be used lavishly, thus eliminating to a large degree the requirement for node switching in the backbone network. Network optimization schemes -- such as dynamic circuit routing using DACS equipment, or the use of routing algorithms to take advantage of time zone load differences -- can lead, if economically justifiable, to even greater network utilization and lower costs.

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<p>2. ABS</p> <p>16. Abstract: This study projects until 2000 the evolution of long distance fiber optic networks in the U.S. Volume I is the Executive Summary. Volume II focuses on fiber optic components and systems that are directly related to the operation of long-haul networks. Optimistic, pessimistic and most likely scenarios of technology development are presented. The activities of national and regional companies implementing fiber long haul networks are also highlighted, along with an analysis of the market and regulatory forces affecting network evolution. Volume III presents advanced fiber optic network concept definitions. Inter-LATA traffic is quantified and forms the basis for the construction of 11-, 15-, 17-, and 23-node networks. Using the technology projections from Volume II, a financial model identifies cost drivers and determines circuit mile costs between any two LATAs. A comparison of fiber optics with alternative transmission concludes the report.</p> <p>@ ABR Author.</p>			
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